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ABSTRACT

This final report from the Center for the Study of Writing, which, over the past 5 years, has engaged in a program of research aimed at understanding how written language is acquired and how it can best be taught, is in three main sections. The first section (Executive Summary) summarizes the Center's major findings related to each problem area and their implications for practice, and describes the impact of the Center's research and activities. The second section (Findings and Accomplishments) reports on individual projects and discusses impact and accomplishments. The following 11 projects are described: (1) Emergent Literacy--Transition from Home to School; (2) Strategic Knowledge in Reading-to-Write; (3) Role of Knowledge Exploration; (4) Effects of Writing Strategies on Learning through Writing; (5) Effective Instruction and Response--Transition to Secondary School in the U.S. and in Great Britain; (6) Effects of Instruction on Performance in Science and in Writing--Transition to Secondary School; (7) Synthesis of Research in Writing and Reading; (8) Oral and Written Language; (9) Effects of Instruction on Performance--Transition to the University: Expectations of Excellence; (10) Identifying Priorities in the Study of the Writing of Hispanic Background Students; and (11) Effects of Instruction on Performance--Transition to the Workplace. The third section lists publications by individual projects, noting books, articles and book chapters, technical reports and occasional papers, televised presentations and videos, and publications by graduate students. An appendix gives a complete list of technical reports and occasional papers published by the Center for the Study of Writing. (SR)

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Center for the Study of Writing

University of California, Berkeley
Carnegie Mellon University

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FINAL REPORT

CENTER FOR THE STUDY OF WRITING

UNIVERSITY OF CALIFORNIA, BERKELEY

and

CARNEGIE MELLON UNIVERSITY

Submitted by Center Director:

Sarah Warshauer Freedman

December, 1990

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SECTION I. EXECUTIVE SUMMARY

Over the past five years, the Center for the Study of Writing has engaged in an ambitious program of research aimed at understanding how written language is acquired and how it can best be taught. Center research has focused on how writers make major transitions—from home to school in the early years, from elementary to secondary school, from secondary school to the university or the workplace, and from the university to the workplace. Across all the research projects, we have paid special attention to diverse populations of learners, including not just those from the middle-class mainstream but also students from low-income families and from varied racial and ethnic groups.

KEY FINDINGS AND IMPLICATIONS FOR PRACTICE

Center research has addressed a number of pressing national educational problems. The following is a summary of the Center's major findings related to each problem area and their implications for practice.

1. Learning to write in school. Children begin school with rich resources for literacy learning, but many students begin falling behind early on, with minorities from low-income areas overrepresented in the lower-achieving groups. The gaps between higher- and lower-achieving students widen each year, the result being that we fail to prepare much of our population to help us meet society's needs. As a Center, first on our agenda has been to understand how schools can begin to narrow gaps in achievement and thereby promote high literacy levels for all students. Overall, the Center's studies of diverse populations of learners has led us to broaden the ways we look at how children learn and how teachers might teach. If classrooms are not opened up to include and make use of the students' varied resources, we have no hope of closing the gaps we now continue to create. We have found the following:

- **Diverse populations of students learn in varied ways and need to be in classrooms that support their ways of literacy learning.** Students bring varied

resources to literacy learning. In the early years, teachers must interweave the use of all the symbolic arts, connecting the liveliness of children's use of drawing, talk, and play with the more complex tool of written language. They need to create a rich diversity of experiences for children, including opportunities for exploratory play with written language, sociodramatic play, oral storytelling, and the use of the graphic arts. Then teachers need to observe their students engaging in these experiences, in order to discover the texture of varied children's resources and then to help children make connections among their varied symbolic experiences.

- **Teachers must provide writers with opportunities for peer talk and, more broadly, for allowing the interplay of their academic and social lives.** As writers' social lives enter the classroom, their social world can be used to support their academic growth. Also, across grade levels the classroom community can be built to be a comfortable place where academic work becomes meaningful.

- **Students should not be tracked into ability groups.** Generally, lower tracks focus on drill and practice, with writing even at the secondary level generally consisting of only individual sentences or perhaps a paragraph. Students in these low tracks have no access to the kinds of instruction that will help them become highly literate, and as studies comparing mixed ability classes in England with low-tracked U.S. classes show, across time tracking takes a major toll. Across the school years, teachers' expectations must remain high for all students, with teachers and schools taking the responsibility for teaching them all. Students' chances to learn will be increased if they are in mixed-ability classrooms.

- **Shifts to mixed-ability classrooms will demand a radical reorganization of instruction.** To benefit all students, teachers will need first to create classroom communities where students are comfortable with one another and where all have a voice. They will need to negotiate with the students about how best to do this. Then they will need to structure the classroom so that all students have access to the materials being studied. For example, while some students may be able to read a book alone, others may need to be read to. Finally, to be sure that students are always motivated to do the work, students and teachers will have to plan the

curriculum jointly, negotiating for example the kinds of writing varied students will do. However, teachers must be certain that students practice varied kinds of writing. Teaching and learning need to be a negotiated process, with teachers and students sharing responsibility for students' learning.

- **Comparisons of literacy instruction in England and the United States show that we could require much more writing of secondary school students in this country, even those students not designated as especially able.** Even middle school students could be engaged in lengthy and extended projects which they could complete across weeks or months.

- **The comparisons also show that teachers could attend to the needs of their varied students and nurture their language and literacy development more easily if they taught them for longer than a single year.** In British schools, teachers normally keep the same group of students for at least two years and often for as long as five years. U.S. teachers have shown much success by keeping the same group for longer than a single year.

2. Writing to learn in school, across the curriculum. Much of the writing crisis has been attributed to the fact that students actually write very little. Over the past ten years, there has been a significant movement to expand the uses of writing across the curriculum, with teachers in all subject areas reinforcing the importance of writing. As teachers of all disciplines begin to use writing more frequently, they are asking how writing might help them get their students to think more deeply and critically about what they are learning. Center research set out to find out how writing might best be used to help students gain better understandings of the concepts that are central to a given subject. We have found the following:

- **Explanatory writing can be a powerful tool for revealing students' levels of understanding of particular scientific concepts.** Such writing is particularly revealing of students' understandings when it occurs before instruction but in response to problems with which students have had some experience. Ironically, current teaching practice which focuses mostly on test-writing generally does not include this kind of writing that reveals what students know.

- **Certain features of student writing seem to be especially useful for**

distinguishing different levels of understanding, while other features seem more related to age and to general development in ability to perform academic writing tasks. The features that are most indicative of high levels of understanding include: (a) length of writing; (b) a focus on explanations rather than descriptions; (c) differentiation of key concepts; (d) use of comparisons and contrasts. By contrast, features having to do with overall organization, focus, and orientation to the prompt are related to age rather than level of understanding.

- **Writing to learn content material seems more likely to contribute to better understandings when the writing is treated not just as an end in itself but as a step toward further instructional activities.** Talk and writing need to be combined to stimulate learning in content areas. Teachers can expect that different students will find some language activities more helpful than others and that depending on the learning task, for a given student, sometimes writing is most useful while at other times talk is.
- **Writing essays helps college students reflect critically about their reading, whereas studying helps them learn facts from what they have read.** Writing seems better suited for the purpose of critically examining information than for acquiring it.

3. College students and adults. Many college students and adults have difficulty writing. Some are illiterate or barely literate but need to become more literate to function better in society and to make the transition to a better workplace. Others have acquired basic literacy skills but need higher-order literacy skills to be able to make a smooth transition to the university and then to function as leaders in our complex global marketplace.

Our studies of adult re-entry programs have revealed that:

- **Often in adult re-entry literacy programs there is a disparity between the objectives of the training programs and the real literacy needs of the students.** Basic literacy courses are often prerequisites to the vocational programs adult students want to enter. When they get bogged down in the literacy courses, they never reach their end goal.
- **Institutionally, more attention must be given to how basic skills, vocational programs, and further academic work overlap.** Most community colleges maintain these

programs as separate, rather than creating overlap so that students can move in a simple trajectory and return if necessary. Teachers themselves make these bridges independently of the administrative organization of the colleges, through discussions and friendship. Basic skills programs need to be reconceptualized to meld them with vocational education or further academic work. Students often do not know "how to make college work." Even counselling, if not supported in the daily activities of the courses, does not provide marginal students with a college identity.

- **Adult re-entry students have literacy knowledge on which instruction can build; models of learning based on chronological principles tied to stage theories of cognitive and intellectual development are not applicable.** Since adults are outside this chronology, the view of adult literacy learners as "catching up" on basic skills usually means that adults are simply seen as needing to go back to studying at an earlier grade level where they left off; such a view neglects the complexity of their backgrounds and the wealth of practical, real-world experience they bring to the classroom. Adults have a range of needs and abilities connected to their life experiences that must be recognized. In the area of literacy, they also have relevant experiences with written language. For example, while lacking competence in many of the conventional mechanics of language, these students often are very sensitive to genre differences, suggesting they have developed competence in literacy that can become an important point of departure for their teachers. Narrative writing appears particularly promising for student growth; students can be helped to "objectify" their relationship to text through repeated telling and recasting of their own narratives. This move toward a shift in perspective within the narrative mode may better prepare students for the shift to expository prose than direct introduction of explanatory essays.

Our studies of college students have revealed that:

- **Prize-winning college student writers use metaphor in highly sophisticated ways; by contrast, composition textbook writers tend to "stay in the mainstream," giving concepts like metaphor formulaic and brief treatment and considering their**

use something of a rhetorical gamble. Writers of composition textbooks could give better advice if they took into account ways successful student writers actually use such literary devices.

- **When students first enter college, they must learn to meet the demands for high levels of writing in varied academic disciplines; they often have difficulties when they try to use strategies that worked for them in high school where the demands were different.** When students plan what they will write, as they did in high school, they often rely on essay-writing formulas or on their knowledge of the content. By contrast, more experienced writers construct a plan for the particular assignment. They define their own goals, think about the needs of their audience, and think about the purpose for the writing. Then they transform their knowledge about the content and their knowledge of writing conventions and forms to fit these goals. Explicit instruction can help students learn to plan in this goal-directed way.
- **Unlike more experienced writers, college freshmen often have difficulty predicting when readers will be confused, when passages are wordy, and what constitutes a positive persona in writing; after using computer programs developed by Center researchers, students can become more sensitive to their readers' needs.** Center researchers helped students identify when readers would be confused by showing them protocols of what readers said about their confusions as they read certain passages. Through this process, the students became sensitive to the needs of readers. Center researchers also developed computer programs to help students detect wordy passages, with participating students improving in their ability to detect such passages.
- **Many basic writing students need special encouragement to get them to engage in educational tasks to the same degree as average and honors students; if they respond to that encouragement, they do as well as the others.** Basic writers spent significantly less time than their average and honors peers on a computer program designed to help them detect wordy passages. However, those basic writers who spent as much time as the others learned just as much.
- **College students find it difficult to combine and synthesize material from**

multiple sources; their difficulty is greater when they write a report than when they propose ways to solve a problem. When writing reports, students have difficulty deciding what information to select and how to organize it. In report writing, students see the authority as being in the reading; in proposal writing, they rely on their own authority.

- **How seriously students take their college-level writing assignments depends on how accountable their teacher holds them; students often take shortcuts which are rarely noticed by the teacher.** Students take these shortcuts when their teachers assign step-by-step guidelines for writing and when they give assignments the students consider "busy work." Engaged students spend much more time on their writing, beginning early, going to the library an average of five times, and writing over several days or even weeks. They base their topic choice on personal interest in the topic, they take notes on their reading, and they revise their writing. By contrast, those taking shortcuts wait until a day or two before the due date to begin, base their topic choice on the easy availability of information, make one trip to the library, summarize and paraphrase sources, write in one or two sittings, revise very little and then mostly at the word or sentence level.

4. Non-native English speakers and bilingual students. Non-native speakers and bilinguals often face special challenges when writing in school, but little is known about these challenges. Information is needed about how theories about writing and the writing process apply to individuals who are composing in the weaker of their two languages, about the development of writing ability in groups of learners of varying proficiency, and about the relationship between writing in a first language and writing in a second language. To gather information about these important issues, the Center sponsored an exploratory project to assess the state of knowledge about the writing of Hispanic-background students and to set a research agenda for the future. We found that:

- **Most studies of bilingual and non-native writers fail to measure the language competencies or proficiencies of the groups they study.** The studies offer little guidance about exactly how the crucial variable of language may have impacted on the writing

behaviors observed. Ultimately, the studies are of little help to teachers who are confronted with students of varying levels of language proficiency in one or more languages.

- **Research on the writing of Hispanic students has only begun to address areas that research on the writing of mainstream students has already investigated in some depth.** Most research on non-native speakers and bilinguals tends to focus on errors in students' writing or on "negative" transfer from Spanish to English, with little attention to students' writing processes, to the development of writing abilities, to writing as a social activity, to task demands of school assignments, or even to variation in individual writers.

- **A new research agenda is needed to study bilingual minority writers, one which makes no assumptions and begins at the beginning to ask how and whether such bilingual students actually experience problems in writing.** Because of the vast differences in linguistic experiences between these writers and monolingual writers, bilinguals and non-native speakers need to be studied independent of mainstream writers. Rather than departing from what we know about mainstream writers, studies must stem from what we know about the nature of bilingualism and the nature of writing and from a desire to link the two areas together.

5. Writing and reading. In the history of schooling in the United States, writing has often been the neglected of the "three Rs." When writing is taught, it is often separated from reading. This lack of integration of reading and writing has hurt students as they have tried to learn both to read and to write. In a synthesis of the research on the relationships between reading and writing, conducted jointly with the Center for the Study of Reading, we found that:

- **Children become better readers and more effective writers when reading and writing are not taught separately but are taught in tandem.** While there is no simple prescription for integrating reading and writing in the classroom, teachers may plan for such integration by considering how their students might read, write, and talk about information in complementary ways across all areas of the curriculum. When used together in the elementary grades, writing and reading afford students the opportunity to learn conventional spelling and conventional forms, enhance their ability to clarify and elaborate on ideas, and help to develop their

skills in reading critically both their own writing and the writing of others. When used together in the content areas, writing and reading become vehicles to explore issues, solve problems, and discover new questions. Students who are taught that reading and writing are collaborative activities often manifest greater motivation to learn, express themselves more clearly, and are better able to evaluate themselves and to understand the world around them.

6. Writing and speaking. Often schools in the United States are silent places, where a major concern is keeping students quiet and under control so that they can listen to the teacher talk. Ironically, we know that in order for students to learn they must be active and that much learning happens when students talk. For writing, talk is especially important since the seeds of much writing is found in ordinary, conversational language. To give students the ability to relate unfamiliar, unpracticed writing habits to habits of speaking that are already totally familiar, we have attempted to identify these seeds of writing in student talk. We have found that:

- **Spoken prosody (pitch, stress, voice quality, volume, tempo, and so forth) and written punctuation are related.** Even though grammar books say that there are strict rules for punctuation, in professional writing prosodic features from oral language actually play a predominant role in punctuating, with the effectiveness of writing being influenced by an ability to use punctuation in ways that meaningfully reflect the writer's prosodic intentions.
- **Writers and speakers use grammatical subjects to create important effects.** In speech, we rarely use grammatical subjects to further what we are saying; the speaker assumes that the subjects already are known to the listener. Writers are free to extend the use of grammatical subjects to include those that present information that is new to the reader.
- **Writers and speakers use language to express "immediate" experiences and experiences that are "displaced," that is, experiences that are from the past or are projections into the future or that are imagined.** In writing, experience is never really immediate, since writers and readers are removed from the real situation, but writers create immediate effects by transferring properties from immediate language to create the illusion that an immediate experience is being relived.

IMPACT OF THE CENTER'S RESEARCH AND ACTIVITIES

Over the past five years, although a new research center, the Center for the Study of Writing has had a significant impact on the teaching and learning of writing in the United States. The Center has established a national reputation and reaches a broad constituency. The research program has been coordinated with several major outreach programs for educators, in order to get the results of our research into the schools and other educational settings as quickly as possible. The Center for the Study of Writing has reached practitioners through the usual channels: Center researchers have given numerous speeches at professional meetings and at gatherings for policy makers, administrators, teachers, and other educators; the Center has sponsored an active in-house publication series of 43 Technical Reports and 21 Occasional Papers, with publications covering all of the Center's constituent audiences (over 10,000 copies of these publications were distributed in the past year alone); the Center has produced two brochures and distributed them to 7,200 people; and the Center has sponsored a series of travelling seminars for educators on topics related to Center work. In addition, Center researchers have published eight books, 60 articles, and chapters in 33 books.

Perhaps most important and far-reaching has been the collaborative relationship between the Center for the Study of Writing and the powerful network of practitioners affiliated with the National Writing Project who provide in-service workshops for a broad community of educators. Through a close relationship with the National Writing Project, the Center's work has been immediately visible to the approximately 733,000 of our nation's writing teachers who have participated in NWP's in-service workshops and institutes. Center liaisons at each of the 163 NWP sites around the world have spread Center research to teachers and other educators at each site. With the National Writing Project, the Center also publishes *The Quarterly*, a popular journal for teachers, administrators, and members of the public that is distributed to approximately 2,500 subscribers every quarter. In addition, NWP practitioners keep Center researchers informed about and focused on those issues that are most pressing in the field.

SECTION II. FINDINGS AND ACCOMPLISHMENTS

A. INDIVIDUAL PROJECT REPORTS

PROJECT 1. UCB Project: *Emergent Literacy—Transition from Home to School*, a study of the relationship between speech, drawing, and writing. Project Director: Anne Haas Dyson.

PROJECT OVERVIEW

Based on three years of data collection in an urban magnet school, Dyson studied how young children's growth as writers during the K-3 years is supported by their use of other kinds of symbolic activity, including drawing, talking, and play and by their interaction with other people, especially their peers. Particular attention was given to children's deliberate formation of imaginary worlds. While all children in the primary grades (approximately 80) were participants in the study, 12 were focused on intensely. To organize and explain project findings, Dyson suggests the metaphor of "multiple worlds," as the project portrayed how the children of a skilled, experienced teacher came to use writing (text worlds) to organize and reflect on their everyday experiences (their experienced world) and, at the same time, to contribute to a socially and intellectually lively—and highly literate—classroom community (the social world).

SUMMARY OF FINDINGS

The first set of findings from the project discussed *the links that exist between writing development and that of other kinds of symbolic growth.* To begin, when children write, they may also draw, talk, and engage in dramatic play. Their "story" is not contained within any one medium but "woven" from the use of varied media. Thus, children are "symbol weavers" who create multimedia creations. Simply examining children's *writing* is an inappropriate way to understand children's ideas, including the kind of *thinking and social activity* that children engage in as they articulate their ideas.

Further, children's use of varied media not only helps them articulate their ideas, but it also

poses for them central developmental challenges. Only certain aspects or elements, as it were, of children's meanings—of their text worlds—are actually recorded in any particular medium. Thus, children must figure out how colorful, dynamic, talk-filled imaginary worlds can be rendered within the flat spaces and colorless squiggles of written text. Resolving the tensions between pictures and sounds—figuring out how to make word pictures and visible rhythms and sounds, how to make a static string of words an enacted and dialogic world—is a basic developmental challenge. Over time, children begin to renegotiate the relationships among different media, using them in coordinated, controlled ways to construct multidimensional but more unified worlds. For example, the observed children made decisions about what ideas to convey through drawing, which through writing, and they began to incorporate dramatic talk as dialogue in their writing.

In addition, children's text worlds become less dependent upon other media. For example, the observed young children's first written texts tended to be labels for their pictures. As authors they produced "art notes," picture commentaries. Gradually, they moved away from commentator roles and adopted roles indicating more active involvement with their texts—they became observers of and then actors in their own imaginary worlds. (This movement was indexed linguistically in part by analysis of first and third person stance.)

A second set of findings from this project emphasized the *critical role of social interaction among peers in writing development.* During this longitudinal study, the observed children were not only becoming "better writers," they were also becoming "old friends," and their social relationships had a role in their literacy growth. For example, peers' questions about children's texts helped focus children's attention on their written texts as separate from their pictures. Further, peer talk helped children understand the functions of extended texts, like narratives, whose social and personal functions are not as evident as are those of more everyday uses of print (for example, it is clear that correspondence or letters serve to establish social connections; but how do stories do so?). Studying the kind of talk children did during composing revealed how the children's multimedia composing played an increasingly larger social role within the life of the classroom. For example, the children could quite literally bring the social life of the classroom into

their written texts through the fictionalization of self and peers and through the extension into writing of peer interaction begun in other media (e.g., in playful talk or drawing).

At the same time, however, the social world of the classroom, like the symbolic worlds of other media, was a source of both developmental support and developmental challenges. For example, in the observed classroom, the use of writing to take social action in the peer world seemed to support the movement from "art notes" to a more active involvement in the production of text worlds (i.e., to adopting a first person stance within the text). However, the children's use of writing to interact socially with peers led not only to more elaborate but also more unstable text worlds (less cohesive, in a linguistic sense). That is, since they were interacting in both the past world of their texts and the present social world, awkward tense shifts occurred. Consider, for example, second grader Jake's piece, written as he played inside—and outside—his text with his friend Manuel:

> Once there was a boy that is named Manuel. Manuel is going to fly the fastest jet and I am going to fly the jet too. But Manuel's headquarters is going to blow up But I am OK. But I don't know about Manuel but I am going to find Manuel [and on the story goes as Jake finds Manuel, assures himself of Manuel's safety ("manuel are you OK? Yest I am OK.") and then saves him by shooting the bad guys "out of the universe."]

Perhaps the most complex function of written narrative worlds is its evaluative function, the use of writing as a means of reflective awareness of the qualities of human experiences. In the observed classroom, the emergence of this function was linked to children's peer talk about their imaginary and graphic worlds. For example, the emergent evaluative function was reflected in the children's early discussions about whether or not each other's pictures were "right" or their texts "true" (i.e., did the described event really happen). These discussions foreshadowed talk about fictional truth, that is, about whether or not something "could happen."

Thus, certain case study children displayed insight into "psychic" truth (i.e., into how somebody "would" feel or act in a certain situation). That is, they began to embed evaluative information into textual description and narration of actors and their actions (e.g., rather than their own liking and hating, their characters liked and hated; they manipulated narrative time to convey experiential qualities, as when they would elaborately describe a moment in time). Compare, for

example, the following two stories by Mitzi. In the first, written in Grade 1, Mitzi labels the two figures in her picture (a rainbow and a girl) and then states her own liking of them and of "you":

> Once there was a girl. She might like You. She liveds under a Rainbow. I Like You. The End

In the second text, written in Grade 2, Mitzi's written world is related to her ongoing social world (in which an important secret has been revealed) and her dislike of that action is evident in her portrayal of the fictionalized self's action in the critical moment of betrayal:

> I said to my sister one day that I was going to run away. My sister screamed, Oh no. My mother and father ran down the stairs. What happened they said My sister was beginning to say that I was going to run away when I ran across the room and covered her mouth. The End. [Mitzi does not have a sister.]

The interplay between real occurrences in their experienced worlds and those in their fictional worlds could lead to space/time conflicts in their texts, just as did those between different symbolic worlds and those between the textual world and the ongoing social world. Clearly, the awkwardness of young children's texts—the shifts of tense and of person—can be signs of progress, signs that children's texts are beginning to play a more important role in their social, intellectual, and affective lives. Over time, children became better able to meld their textual, ongoing social, and experiential worlds. Thus, writing development does not depend only on children's discovery of cognitive and linguistic strategies for creating coherent written texts. Rather these strategies may depend on children's discovery that writing can help them create coherence in the worlds beyond the text. It is this process that is analytically revealed in the book resulting from this project, *Multiple Worlds of Child Writers: Friends Learning to Write* (New York: Teachers College Press, 1989).

A third set of findings relate to *stylistic or individual differences in children's ways of using different symbolic media and in interacting with their friends and to how these differences shape their developmental histories as writers*. While children potentially have similar resources (symbolic tools of drawing, talking, play; social tools of interaction with teacher and with peers) and face similar challenges (of differentiating and acting within multiple worlds), the precise nature of their resources and challenges vary because their ways of interacting with symbolic and social

materials vary. More precisely, children beginning to orchestrate the written language system may differ in the extent to which they focus on the varied demands of the writing activity and in when they maintain that focus. These differences may exist, in part, because of the differences in the ways in which children make use of the available sources of support, some children tending toward crossing social and symbolic "boundaries" to engage in messy collaborative exploring, others toward setting careful boundaries to ensure careful, methodical constructing.

The final set of findings relate to *issues of sociocultural differences and the degree to which current ways of thinking about literacy teaching and learning allows children and teachers to make productive use of these differences*. Currently, the metaphor of "scaffolding" is particularly popular for conceptualizing literacy teaching and learning. This metaphor calls attention to how teachers and children interact within particular literacy activities. The findings of Project 1 suggest that this metaphor is too linear, as the study suggested that children's progress in any one activity is fed by all kinds of intention-guided experiences (e.g., exploratory play with writing, labeling, storytelling, drawing, playing). For example, a case study of a young child in the opening months of school revealed how exploratory, playful, and storytelling behaviors that originated in activity that did not involve literacy gradually became incorporated into the composing activity. A complementary case study suggested that teachers may find supporting this weaving together of intentional behavior difficult. Teachers may not understand the "sense" of children whose literacy backgrounds differ from their own (e.g., making sense of children's ways of storytelling) or of those with less experience with literacy (e.g., making sense of children's exploratory play with print forms). However, because the study focused on individuals from socially and culturally diverse backgrounds, it raises but does not answer questions about how particular kinds of sociocultural differences among children (e.g., in ways of storytelling) influence the course of writing development.

IMPLICATIONS FOR PRACTICE

The above four sets of findings suggest, first, that *effective language arts programs for*

young children must interweave use of written language with the use of all the symbolic arts, connecting the liveliness of children's use of drawing, talk, and play with the more complex, initially less ostensibly "colorful" tool of written language. The overwhelming research and pedagogical emphasis on how young children learn to encode and decode words has drawn attention away from the broader, more intellectually critical skill of constructing worlds. Many of the publications of Project 1 (see bibliography) have emphasized just this point.

Second, *providing children opportunities for peer talk and, more broadly, for allowing the interplay of children's academic and social lives is critical for literacy growth in school settings.* The successful interplay between these aspects of children's lives depend in part on the kind of peer relationships fostered in the classroom community by the teacher. Among helpful procedures may be stressing cooperation over competition, providing space for ongoing school display of every individual's work, explicitly discussing the valuing of individuals' efforts and, simultaneously, individuals' responsibility to the community's well-being, and talking about ongoing class history (e.g., by recalling and projecting significant accomplishments, events, and products of former, ongoing, and anticipated classes).

Third, *visions of writing development that are linear or uniform may mask the holistic sense of individual children's behavior and thus are not sufficient as a theoretical or pedagogical base for classroom assessment.* Rather, viewing development as a result of complex mutually influential sets—written language, the individual child, the specific setting or settings of interest—seems more appropriate. This study thus supports efforts to devise ways of documenting written language growth that are based on teacher observation of child behavior. However, a final implication of this project is that teacher observation of writing growth must be directed, not just to writing per se, but to the rich diversity of resources children bring to school with them. *A rich diversity of experiences for children—including opportunities for exploratory play with written language, sociodramatic play, oral storytelling, and use of the graphic arts—enriches teacher observation as well as children's learning, allowing teachers to discover the texture of individual children's resources and to help them make connections among them.*

PROJECTS 2-4. Carnegie Mellon University Projects: *Academic Literacy—Transition to the University*. Project Directors: Linda Flower and J. R. Hayes.

PROJECT 2. CMU Project: *Strategic Knowledge in Reading-to-Write*.

SUMMARY OF FINDINGS AND IMPLICATIONS FOR PRACTICE

The planning process of experienced writers

As a basis for both teaching and research, we need a theoretical foundation that explains how experienced writers use planning in writing—and how this process differs from what inexperienced writers often do. In this first phase of our research, with the joint support of OERI and the Office of Naval Research, we focused on college-age and adult writers to identify some of the underlying processes that make planning both difficult and productive and that reveal differences in expert/novice strategies.

1. The first important choice adult writers make is at the level of an "executive" strategy or structure for planning. They may choose to rely on planning structured by their knowledge of their topic, or on planning structured by familiar text patterns or genre conventions, or on planning structured and guided by the unique goals and plans they develop for a particular text and a particular audience.

2. Each of these three planning strategies works well for certain tasks. Experienced writers move flexibly among these three strategies, but novice writers tend to rely on the first two—even when the task calls for a more uniquely-guided process. College-age novice writers face problems because the third type, planning that is unique for the particular piece of writing, is critical to much academic writing and is particularly difficult.

3. Planning that is unique to the writing task is demanding (and valuable) because it presents writers with six challenges—six key sub-processes which distinguish it from the other planning strategies with which students are more familiar.

- Writers must *construct their image* or representation of the task. They must read the situation,

define their own goals, and set priorities.

• Beyond an initial image, writers must *develop an elaborated network* of goals, plans and criteria unique to this task. Because the plan for and structure of the writing is not supplied by content knowledge or conventions, writers create their own plan based on their purposes, key points, images of the audience, and their knowledge of conventions that might carry out those purposes. They must transform and adapt their content knowledge and knowledge of conventions to fit these goals.

• As this network grows in unpredictable ways, *integrating and structuring* this expanding network of ideas and goals becomes a major task. Because planning is often opportunistic, taking advantage of ideas triggered by other ideas, integrating and linking this network can be a genuine challenge.

• When writers work with abstract goals and plans, they are able to manipulate ideas in flexible ways, but the price for such flexibility is that they must then instantiate these abstract possibilities in their writing. *Translating plans to written text* is a stumbling block for many writers.

• A key process that marks experienced writers is the attempt to review the current plan and to *consolidate ideas*, making connections among purpose, audience and discourse and text conventions.

• Because planning that is particular to the task creates an expanded network of goals, plans and text, it also generates *conflict*. Experienced writers appear to deal with more of such conflicts and do so at the level of the writer's purpose rather than the wording of the text.

This phase of the project not only uncovered some unexpected and often unrecognized sources of difficulty for students, it showed how writers can bring what they already know into a more constructive process and described six key challenges which teachers can help students meet.

Reading-to-write in a classroom context

On the basis of the theoretical, laboratory-based study described above, we investigated the planning and reading-to-write process of 72 freshman students making the transition from high

school to college in the context of their regular freshman writing course. This study examined reading-in-order-to-produce-writing-of-your-own and made some unexpected discoveries about how students interpret and use instruction—and about some critical parts of the reading-to-write process which teachers rarely see.

1. Students have varied mental representations of supposedly common academic tasks. Because their multi-faceted mental representations are constructed from prior experience, from inferences about the social and rhetorical context of the writing task, and from their own values and desires, different students may approach a common reading-to-write assignment with meaningfully different sets of goals, strategies, and criteria.

2. These differences can cause problems. Because these representations are often tacit, students and teachers may be in unspoken disagreement about what constitutes an "appropriate" representation. A student may be struggling in good faith to construct a summary organized by the key terms from the text, carefully relegating his or her own ideas to a tacked on "response," while the student's instructor may assume that in college writing one would, of course, go beyond the source text, would organize the reading around key terms from previous discussions, would apply readings to a problem posed by the course, and so on.

Moreover, when a student's written text is used to decide what sort of task (for example, summary or interpretation) the student was attempting, students and their readers may disagree. It seems fair to conclude that some of these freshmen are still developing their picture of what a complex task such as synthesizing, interpreting or arguing requires. Their readers are expecting more than the writers deliver. On the other hand, this recurrent observation is also a disturbing indication that the written product can be an inadequate, even misleading guide to the thinking process that produced it. Our product-based inferences about a student's late-night writing process may radically underestimate the available knowledge, the problem-solving effort, and the unresolved dilemmas that actually exist. When this happens, we may be trying to diagnose and teach a thinking process in the dark.

3. Building an "appropriate" task representation isn't enough. Even when goals,

strategies, criteria, and the constructive process of task representation are brought to their attention and become the object of thought and choice, writers are not always able to carry out the plans they intend. Task representation may play a far larger role in a writer's performance—and success in school—than we have recognized; however, we must not underestimate what is left to learn and to teach. As students confront academic writing in high school and in college, they are entering a community with specialized conventions and expectations which they must learn and a community which expects writers to create and transform knowledge—a task all of us find difficult. Learning to write in college appears to be a mixture of questioning assumptions and building new task representations; of applying certain broad cognitive and rhetorical capabilities already possessed to school writing; and, finally, of learning certain new conventions, strategies and habits of mind. The teaching problem in helping students through this transition is inferring the appropriate balance—knowing when one needs to challenge the student with a classroom context that calls for those broad capabilities, when one needs to challenge the assumptions and prior images of the task that may confound a student's effort, and when one needs to teach new strategies for thinking and writing.

4. Academic discourse is not a unified single entity, nor is its community a peaceable kingdom agreeing on its goals and intellectual conventions. This diversity in discourse practices within academic writing is one part of the writer's problem. At the same time, this study suggests that certain basic intellectual goals or practices, which *do* form a common thread across much academic discourse, can also cause special difficulty for students and may be at the root of other more apparent problems.

Academic discourse as defined in this classroom study placed special value on two literate practices. One of these was *integrating one's own ideas and knowledge* into the written conversation with one's sources. The freshmen assumed that more accomplished writers would do this (although they themselves didn't). The teachers expected such integration as a move toward critical literacy and toward realizing writing's potential to transform knowledge rather than to report information. The other valued but problematic practice was *interpreting source texts for a*

purpose of one's own—applying or adapting knowledge to solve a problem or to reach one's own goals. Throughout the study we observed students in difficulty with both of these expectations—failing to attempt them, wrestling with their confusion over what should be done, or caught in the attempt by the inherent difficulty of these intellectual acts. These two practices emerged as significant hurdles to these students' full entry into academic discourse.

5. The process of reading-to-write in college is both a cognitive and a social act. That is to say that the performance we observed was a *strategic process* in which students—like all writers—read the context of the rhetorical situation as well as the task at hand and in doing so constructed their own representation of the task, set their own goals. On the basis of that image and those goals they drew on the thinking skills, the rhetorical strategies, and the discourse conventions that they knew or thought might help. This constructive act not only took place in the immediate social context of a class, it was itself a function of students' history, assumptions, and past experience with writing in school. Cognition and context, goals and strategies were engaged in a complex, interactive performance.

6. Watching writers caught up in this cognitive and social process of negotiating academic discourse makes one increasingly skeptical about trying to specify "what a freshman writer needs to learn." Our data argued against a deficit model that would point to some missing "cognitive skills" these eighteen-year-old freshmen needed to develop or to generic discourse conventions they needed to master. Nor could we conclude that any given vision of "academic writing" could stand as the ideal toward which we should urge students to aspire. For instance, under some circumstances we place special value on taking a high-effort, purposeful, interpretive stance toward one's reading (see point four above). But our own experience as writers said that one only sets that especially demanding task when the situation and one's own goals call for it. To be an effective writer means being able to read a situation, to weigh the costs and benefits of your own options, and to carry out the goals you set for yourself.

The knowledge writers need, as we came to see it, was best described as strategic knowledge. It involves reading a situation and *setting appropriate goals*, having the *knowledge*

and *strategies* to meet one's own goals, and finally, having the *awareness* to reflect on both goals and strategies. Strategic knowledge is a contextualized form of knowing—it develops over time and out of experience. At the same time it renders that experience and those prior contexts open to reflection. If this characterization proves useful and we choose to teach the reading-to-write process as a strategic, cognitive and social act, we may find that this final element of awareness carries a potential we have only begun to tap.

Moving from research to teaching: The study of collaborative planning as an instructional prototype

The final phase of our project is an attempt to translate the theoretical foundation of the first phase and the classroom observations of the second into a practical plan for teaching. We wanted a recommendation for teaching that was specific enough that we could investigate how it worked and didn't work in classrooms. On the other hand, we wanted a recommendation for practice that focused on principles not procedures, and that was designed to be adapted by teachers to fit the needs of their own students and the diverse goals of their classes.

Collaborative Planning is an educational method designed with a number of goals and recommendations for practice in mind:

- The first is to make students aware of the need to do purposeful "constructive planning" in academic writing.
- The second is to use direct instruction that will help students to recognize and confront challenges of planning (such as dealing with conflicts) and to develop some of the strategies experienced writers use.
- The third is to help both teachers and students become more aware of students' own thinking strategies, of the considerable but untapped resources students of all backgrounds bring to planning and writing, and of the difficulties writers encounter which teachers may never see—but need to teach to.

These recommendations are based on both the research that provided the foundation for

Collaborative Planning, on a systematic study of collaborative planning sessions in two freshman classes, on data collected in two advanced writing classes, and on the experience we have derived from three years in which 25 high school and college teachers and community literacy leaders in Western Pennsylvania have used collaborative planning as the basis for a cooperative classroom inquiry project. Called "Making Thinking Visible," this Center project was also supported by the Howard Heinz foundation. It found that:

1. Student writers need a social context that not only motivates exploration, but that foregrounds their own intentions, and that both challenges and supports purposeful, audience-based thinking. In Collaborative Planning the floor belongs to the student planner. The goal of the session is for the planner to develop an elaborated understanding of his or her own plan. The supporter creates a social context for exploring the plan and helps prompt the writer to monitor, question, and extend his or her thinking.

2. Various kinds of pre-writing can be a useful preparation for a planning session, and collaborative planning can complement peer editing as a way to approach revision. However, when students do not have a text to defend and the focus is on the writer's intentions and not the reader's response, students appear willing to consider genuine problems and significant alternatives.

3. Previous research had shown that inexperienced writers frequently depend on knowledge-driven strategies, focused primarily on developing plans "to say" something, rather than "to do" something in writing. In Collaborative Planning students were given prompts to think about rhetorical concerns, in the form of a visual metaphor called the Planner's Blackboard. This prompt helped both partners turn their attention to the issues of purpose, key point, audience, and text conventions. For the freshman, the issue of "purpose" was, in fact, always discussed at the instigation of the partner, suggesting that collaboration was adding an element the writers were not actively considering. For teachers, the Planner's Blackboard was a flexible metaphor that they could translate into other terms. And it was a way to focus students' attention on different parts of planning (such as the purpose underlying a student's argument, or the conventions of a particular

genre) that fit the goals of a given assignment.

4. In a close analysis of the collaborative process of the freshmen (based on the taped sessions held usually in students' dorm rooms), we found surprisingly strong evidence of constructive planning. Where we might have expected inexperienced writers to devote time to discussing topic information and developing plans "to say," students devoted nearly 40% of their comments to issues of key point and purpose, 20% to audience, and 25% to text conventions. Collaborative planning—the combination of prompts under the students' control and an informally structured collaborative context—appeared to support a sustained engagement with purposeful planning.

5. Collaborative planning has an influence not just on "ideas" but on text. When supporters in the freshman study gave their partners hard prompts that required "constructive planning," planners accepted the challenge and generated ideas in response nearly 80% of the time. Moreover, nearly all of these ideas appeared in prominent places in the final text, in the introduction, conclusion, or as support for major points.

6. However, it is not enough to teach planning strategies alone if we don't have insight into students' *strategic knowledge*—into not just *strategies* students use but into the *goals* they set and the *awareness* they have (or lack) of their options as writers. An even more challenging finding came from our closer study of how students were in fact interpreting and using the instruction itself—and our study of sessions that did *not* succeed. Collaborative planning sessions (as a unique source of data on writers' thinking processes) are showing three key processes that contribute to students success as planners: the process of *interpretation*, in which writers "read" the context, representing the task to themselves; the process of *negotiation*, in which writers chart their own path through a myriad of constraints, including negotiating questions of authority with their teacher and peers; and finally the process of *reflection*, in which student become aware of their own strategies, options and expectations.

7. Although our study of collaborative planning is only beginning, studies in two classes following the freshman study suggest that these sessions (and the tapes) allow a new opportunity

for observation and reflection. When reflection is integrated into instruction it has given both teachers and students new insights into students' writing—into the role affect and social context play in students' decisions, and into the strategies and assumptions students are bringing to a particular writing problem.

POSTSCRIPT

This project set out to develop a model of reading-to-write and planning as both a social and cognitive process. In trying to do so, we have moved from asking what strategies writers possess and how well instructions work, to asking how individual students and groups of students actually interpret instructions, to how they negotiate the situations they find themselves in, and when given the opportunity to reflect on their own thinking, what that fresh, highly situated version of the writing process teaches us and them.

The results of the Reading-to-Write study have been published by Oxford University Press in the book *Reading-to-Write: Exploring a Cognitive and Social Process*. This is the first book in a series sponsored jointly by the Center and Oxford, entitled *Social and Cognitive Studies in Writing and Literacy*. This series will support research that brings both social and cognitive perspectives to the study of writing and teaching.

We are left with the following unanswered questions:

- How do different patterns of interpretation and negotiation affect learning?
- Do students from diverse backgrounds approach these strategic processes differently?
- Can we make reflection and awareness a powerful tool for helping both students and teachers to understand diversity and respond to it in productive ways?

PROJECT 3. CMU Project: *Role of Knowledge Exploration.*

SUMMARY OF FINDINGS

To write competently, writers must make use of knowledge they must search for in the outside world as well as the knowledge they already have. Research papers and business reports typically require the writer to search for content in external sources. As we will see, writers differ in important ways in their approaches to such research tasks. But even in cases in which the content is drawn entirely from memory, external knowledge searches are still important, for, if writers are to revise effectively, they must be able to "see" the faults in their texts. The importance of "seeing" problems in text became evident to us during prior research on revision (Hayes, et al., "Cognitive Processes in Revision," 1987). In this research, we found that many freshmen writers were "persistently insensitive" to text problems that more skilled writers perceived quite easily. Overall, freshmen detected only 62% as many problems as did the experts. These observations suggested that training in "seeing" text problems could be helpful to many writers.

In this summary of the results of Project 3, we describe four studies. The first is an evaluation of a successful pedagogy for teaching writers to "see" text features which are likely to confuse readers. The second explores differences in writers' abilities to see the personality traits which their writing projects to readers. The third revealed unexpected differences among basic, average, and honors students, and the fourth describes surprising differences among students in the way they approach writing assignments.

Teaching writers to see what will confuse readers

This study was conducted to evaluate a pedagogy Karen Schriver designed to help writers to see text features which confuse readers. In each lesson, students were first asked to read a flawed text and to predict the sorts of troubles the reader would have in comprehending the text. These texts, written for lay readers, did not contain spelling and grammatical errors, but rather had poor definitions, unclear procedures, missing examples, ambiguities, and other "above the word or

phrase" level problems. Next, the students read a thinking-aloud protocol of a reader trying to comprehend the text. The students then revised their predictions of reader difficulties.

The effectiveness of this pedagogy was evaluated by comparing participants' pre-test and post-test scores in predicting those aspects of a set of texts that would create comprehension problems for the reader. The texts were excerpted from the "science" and "medicine" sections of *Time* and *Newsweek* magazines. To determine the accuracy of the writers' predictions of reader problems during pre-test and post-test, it was necessary to determine exactly what problems the stimulus texts created for readers. To identify the problems, Schriver collected reading protocols from 30 freshmen trying to understand each of the six texts. Two coders independently evaluated readers' comments on 180 protocols and agreed in identifying the problems in 95% of cases.

The participants were 117 college juniors and seniors enrolled in ten classes in professional writing. Five classes served as the experimental group and five as the control group. Writers in the experimental group were trained with the reader protocol materials over a period of three weeks. Writers in the control group were trained in traditional audience analysis heuristics and peer response methods including peer critiquing, role playing, identifying demographic features of audience, and others.

The results of the study were dramatic. After training, the experimental group correctly identified 62% more reader problems than before. Analysis of variance indicates that the improvement of the experimental group due to training is statistically significant ($p<.005$) while the pre-test differences between experimental and control groups and the pre-test/post-test differences for the control group are not significant.

Schriver's training method, then, has proved quite successful in teaching writers to detect text features which will cause problems for the reader. This line of work holds considerable promise, not just for developing sensitivity in writers but for audience sensitivity more generally. In the area of teacher education, such an approach can be used to sensitize teachers to how their students can learn to understand assigned texts.

Inferring the writer's personality from text

Readers may draw conclusions not only about what the writer is saying but also about what the writer is like as a person, e.g., friendly, arrogant, intelligent, and so on. In some sorts of communication, such as letters of application, inferences about the writer's personality may be of great importance.

To explore readers' judgments of writers personalities, we obtained 700 essays written by high school seniors applying to college. The writers were responding to a prompt which asked them "to tell us something about yourself that you would like us to know." We chose to study college application essays because we believed that students would take them seriously and do their best to present themselves in a positive way.

The first question we addressed was "Are readers consistent with each other in judging personality traits in text?" To answer this question, we asked three experienced college teachers to read 60 essays and to indicate for each whether the text suggested that the author possessed any of a list of 30 personality traits. We found a highly significant level of agreement among the judges. We were surprised to find, though, that many of the student essays projected negative personality traits, and in some cases, most of the projected traits were negative.

We then selected 20 essays which represented the range of the essays from those which projected largely positive traits to those that projected largely negative ones. We asked eight members of the college admissions staff to read the essays and to select ten for admission. We found a strong and significant correlation between the number of votes the writer received for admission and the proportion of positive traits the previous judges had attributed to the writer.

Our next question was "How does it happen that students who are trying to present themselves positively actually present themselves negatively?" To answer this question, we asked ten freshman college students to read the essays and make personality judgments about the writers. The freshmen were very much more positive in their judgments of the writers' personalities than were the original judges, the admission staff members, or an additional group of ten writing instructors. To a large extent, the differences in judgment seemed to reflect differences between

teenage and adult culture. For example, text features which freshmen regarded as reflecting creativity or wisdom were often judged as trite, immature, or pretentious by the adult readers. It would appear then that the students might well have failed to see that their texts would project negative personality traits to adult readers.

These results pose the pedagogical question "How can we help writers to anticipate how their texts will be read?" This question is of primary importance for not just college applicants but also for other groups of writers appealing to audiences with which they are not entirely familiar, such as minority writers applying for jobs, adult writers trying to convey drug information to teenagers, and medical writers needing to communicate with low literate adults.

Engagement in learning among basic, average, and honors students

The problem of motivation is important for all writers, but it is especially so for basic writers. Teachers have long known that basic writers appear less willing or less able to engage themselves in educational writing tasks than are average and honors students. However, no systematic studies have explored these differences in engagement and the consequences that these differences have for learning. We have been able to take advantage of an unusual opportunity to make such observations in the course of evaluating a computer based instructional package. The purpose of the package was to increase students' sensitivity to wordiness in text. To evaluate the package, we asked basic, average, and honors students to participate in in-class pre- and post-tests and three one-hour sessions of self-administered computer-based instruction. Over all, the evaluation of the instructional procedure was positive. Students did become more sensitive to wordiness in text. More interestingly, though, we observed striking differences in the levels of engagement shown by the three student groups. First, nearly 40% of the basic students failed to take the post-test while less than 5% of the average and honors students failed to do so. Second, the basic students attended fewer of the computer sessions than did the other students. Basic students attended 52% of sessions, while the honors students attended 77%. Third, when basic students did attend computer sessions, they engaged less fully in those sessions than did the other

students. During computer sessions, basic students did just under 70% of the tasks presented while honors students did 87%.

To explore the relation between engagement and learning, we constructed an engagement scale which reflected both the number of computer sessions the students attended and their level of engagement during those sessions. We found that students scoring in the bottom third on the engagement scale learned no more than the control group. In contrast, students scoring in the top two thirds learned much more than the control group. When the basic students scored high on the engagement scale, they learned as much as the honors students. However, fully 60% of the basic students scored in the bottom third of the engagement scale while only 6% of the honors students did so.

A survey failed to reveal differences between the basic students and the others in hours worked outside of school, time spent in athletics, fear of computers, or attitude toward English courses. Until we understand why many basic students fail to engage fully in educational tasks, we may have little success in helping them to perform well in school. However, once we are able to engage them, the evidence shows that they will learn.

Managing writing assignments

These intensive case studies conducted by Jennie Nelson explored how students prepare themselves to complete writing assignments. Twenty-one randomly selected students in classes which assigned research papers were studied. The classes were taught in the departments of drama, physics, history, social science, and English. Participating students were asked to keep daily logs of all of the activities involved in writing their assigned papers, e.g., library research, planning, and conversations with peers, as well as the actual production of text. The diaries were collected at least three times a week.

Nelson described her experience in conducting these studies as follows: "Much of the research I had read on students' composing processes often depicted freshman writers as novices who relied on a limited repertoire of composing strategies and were unaware of what was expected

of them in college writing assignments. This picture of naive, struggling writers did not match the savvy writers I encountered in students' log entries. As the students' log entries began to appear in my mail box, I was struck by how rich and disturbing these candid views of student writing were. Students revealed their frustration in being forced to write papers that they considered "dumb busy work" and described ingenious methods for producing a research paper in just a few hours . . ."

She characterized the composing processes of such students in this way: Students didn't start work on their papers until one to three days before the paper was due. They based their topic choice on the easy availability of information rather than on their personal interest in the topic. They made one trip to the library. Once writing began, no further sources were examined. Thus, the information collected during this one trip determined what the paper could be about. These students then summarized and paraphrased sources, page by page and one source at a time. Writing, which was accomplished in one or two sittings, consisted of arranging chunks of notes, each chunk corresponding to a source text. There was little or no global revision. Most revision involved changes at the word or sentence level. Finally, the students disliked writing the assigned paper, describing it as "boring," "tedious," and "busy work."

In contrast to these students, Nelson found others students who "appeared to be deeply engaged with their assignments, spending many days researching, reading, and writing, and discussing what they were learning with anyone who would listen."

She characterized these students in this way: These students started work on their papers three weeks to one month before the due date. They chose their topics on the basis of personal interest. They returned to the library an average of five times. Searching for information often included "broad background reading" not accompanied by note taking. Notes were typically organized around a predetermined plan rather than summarizing one source at a time. Writing, which was completed over several days or even weeks, showed little direct correspondence with the writer's notes. There was considerable global revision with some students completely abandoning early drafts to start anew. Finally, these students did not complain about the writing task or characterized it as "fun" or "interesting."

Nelson's observation that students may spend very little time on what their instructors regard as a major assignment and may fake data to avoid engaging in what was designed as a major learning opportunity is informative and disturbing. However, even more informative is her observation that the students routinely get away with it. If students are to learn through classroom assignments, they must spend sufficient time engaging in them to allow for learning. Apparently, though, our procedures for evaluating a student's performance are often not sensitive enough to allow teachers to tell whether or not the student has taken the assignment seriously nor to ensure that intellectual effort will be rewarded in what we hope are our educational institutions.

IMPLICATIONS FOR PRACTICE

Project 3 has a number of important pedagogical implications both at the conceptual and at the practical level. At the conceptual level the project has called attention to three major issues:

1. Writing pedagogy has underemphasized perceptual knowledge, that is, the ability of writers to "see" text problems, such as missing information, projection of negative personality traits, and stylistic flaws.

2. Basic writing students may need special encouragement to get them to engage in educational tasks to the same degree that average and honors students engage in them.

3. As educators, we need to pay careful attention to the complex relation between student and teacher and between student and educational institution if we are to design educational experiences which are not treated as "busy work."

At the practical level, work in Project 3 has included the design and testing of two novel teaching packages which provide self-paced, example-based instruction in perceiving text problems. These packages are ready for use in either academic or non-academic settings.

PROJECT 4. CMU Project: *Effects of Writing Strategies on Learning through Writing.*

PROJECT OVERVIEW

Much literacy learning occurs in college as students perform complex writing-to-learn tasks and as they participate in the discourse of the academic disciplines. Academic writing tasks often require students to read as well as write: to read texts on a given topic that have been written by authorities in the discipline and then to make new contributions based on what has been said by those other writers—to use those other writers' texts as sources. Such acts of composing from sources are quite common in the writing of informative and persuasive texts—arguments, reports, proposals, critiques, and summaries. In performing these writing tasks, writers must be critical readers, evaluating claims that are made and developing criteria for selecting material they will include. To create their own unique texts and meet their own goals, they must integrate the source material that they select with what they know. And in interrelating material from multiple sources to serve these new purposes, they must often recombine and restructure—transform—that material as they supply their own organization.

As students progress through their college careers, they have experiences reading and writing the discourse of the academic disciplines, and they learn about the nature of authorship in particular disciplines. While learning how to produce disciplinary texts themselves, they also learn how authorities write—what forms texts take, how claims are supported, and what makes for an authoritative text. This discourse knowledge is important for being able to evaluate other writers' texts as well as to produce one's own.

In Project 4 Nancy Nelson Spivey has focused attention on these two issues: (1) the nature of academic writing tasks based on sources and (2) the acquisition of knowledge about writing in academic disciplines.

SUMMARY OF FINDINGS

How do different writing-to-learn tasks influence the ways in which writers use sources? Many writing-to-learn tasks require students to create new texts from multiple sources, which often take the form of complex academic articles and lengthy portions of books. Much prior research has focused on summarizing, but summarizing, which can be a rather straightforward task of compressing a text to its gist, is only one form that composing from sources can take. Our studies have focused mainly on writing tasks that invite writers to make strategic decisions, to choose among options—tasks that do not have a single ideal product. One question we have addressed in Project 4 is how different writing-to-learn tasks based on multiple sources can invite writers to use sources differently and to construct different meanings. In a pair of inquiries, we have focused on two general kinds of tasks: a report-writing task and a problem-solving task.

Writing and Learning from Sources was situated in a psychology class, "Principles of Child Development." The 38 students taking the course were given assignments to write papers on the topic of egocentrism in communication. They were to produce their texts by synthesizing material from five full-length psychology articles on the topic of egocentrism. Students were assigned to either the report-writing condition or the proposal-writing condition. The former asked them to write a report synthesizing from the sources what is known about the topic, and the latter asked them to propose a way to provide answers to a problem (a discrepancy in research findings) raised in the sources. In studying differences associated with task, we analyzed the texts that the students wrote to see how they organized them and what information they chose to include. We also analyzed verbal protocols (written responses to questions posed before and after writing) to gain insights into writers' perceptions of their task.

There were significant differences in the organizational patterns that the writers used to structure their texts. Students writing reports were more likely to use loose collection patterns with content clustered thematically. Students writing proposals were more likely to use response patterns, with one major section of the text focused on the problem and the other section focused on a possible solution. Although the report-writing task may appear less difficult than the

proposal-writing task, the report-writers actually spent more time on their task, and they tended to focus to a greater extent on the difficulty of their task in their verbal protocols after writing.

Analyses of the texts as well as analyses of the verbal protocols show the difficulties to be related to the selection and organization of information. Selection of information was an important operation for all the students, because the sources offered much more information than the writers could use. Whereas the proposal-writers could focus on content relevant to the problem posed, the report-writers had no clear relevance principle to guide their selections. They knew they should be comprehensive, but, as one student put it, "I don't think a summary of the articles is what is desired." Organization was also a key operation because writers had to reconfigure content for these new kinds of texts that served different purposes. Proposal writers tended to find an organizing principle fairly easily: they discovered an organizational signal (for a problem-solution pattern) in the assignment or they drew upon their knowledge about how research articles are typically organized in psychology, presenting a research problem and then presenting the study as a solution to the problem posed. However, there was no conventional way for the report-writers to order the material. Those students who did particularly well on the report task were those who discovered a tension within the sources, some authorities supporting Piaget's views and others arguing against them, and thus set up their reports as a contrast between the two perspectives.

The writing task comparison was replicated in a history class in a subsequent inquiry, Writing from Sources: Authority in Text and Task. Fifteen students taking a course in "European Lifestyle and Culture" were either to write reports about the issues surrounding the European Recovery Program (ERP) or to write papers proposing conditions or options that planners might have attached to the ERP. In this investigation, like the other, data came from analyses of the texts and of verbal protocols (which, this time, were collected on audiotape at three points). As in the previous study, organizational patterns differed for the two groups, with report-writers tending to use collection patterns and proposal-writers tending to use response patterns. The protocols suggested that those writing reports were more likely to see their task as requiring them to rely on the authority of the sources. They tended to view their task as understanding "what each article

was saying" and managing to "cover everything and get specifics from the text." In contrast, students writing the proposals were much more likely to see their task as one that authorized them to make their own contributions based on what they already knew (including what they had learned in the course). One student, for instance, said that the instructor wanted them "to assume the role of a decision-maker" and to "argue with evidence." Over the course of composing their papers, no student in either group changed from his or her initial representation of the locus of authority. Report-writers continued to see their task as one in which authority lay in the sources, and the proposal-writers continued to see their task as one in which authority lay in themselves as writers. Interestingly, when it came to actually writing the papers, this difference did not show up in the relative amounts of source material they included. Although the proposal-writing group did include more information, they did not add significantly more information of their own. Their heightened sense of ownership of the material showed up in their ways of presenting and ordering information rather than in their selection of it.

Instead of comparing two different writing tasks, another study conducted for Project 4 compared a reading task with a task that entailed writing based on a source text. The question guiding this study, Effects of Writing Strategies on Learning through Writing, was: Does writing about a text facilitate learning its content in a way that studying it does not? Findings suggest that essay writing encourages critical reflection about the material in a text and elaboration of the ideas and information presented by the text. However, study-reading can lead to acquisition of more knowledge of the content of the text. If a teacher is interested in students' merely acquiring factual knowledge from a text, the most appropriate task may not be writing an essay. The 40 students in the study experienced both conditions but with different texts for the two tasks so that comparisons could be made of the same individuals across tasks. Think-aloud protocols of students verbalizing their thoughts while reading and writing showed a level of engagement with the material in the essay-writing condition that was not present in the study-reading condition. Writing seems better suited for the purpose of critically examining information than for acquiring it. The study indicates that strategies leading to "good writing" do not necessarily lead to "good learning." For instance,

planning the text and thinking about one's audience were both negatively related to performance on the learning measure.

How do students' conceptions of disciplinary writing change over time as the students gain more knowledge of a discipline? In Project 4 we have also been investigating how students acquire the knowledge that allows them to perform the complex writing tasks required in their courses. Two investigations have tracked changes that occur over time, one dealing with changes over the course of one semester in a single class and the other dealing with changes over six semesters of a college career.

Authorship and Authority: Students' Conceptions of the Writing of History is a naturalistic inquiry that was situated in a college history class in "Twentieth Century America." It was the only history class that these 32 students, juniors and seniors, would be taking, and one of the professor's stated goals for the course was for them to learn to think like historians. He wanted the course "to introduce more of the processes of history and the tools of the historian." He placed great value on writing as a way to accomplish this objective. Through questionnaires, interviews, and text analyses, we traced changes in students' concepts about the writing of history—about the nature of authorship in the discipline of history. Most of the students entered the class with an archivist view, believing that history is limited to the chronicling of facts. For instance, one student said, "History is an official record of all events that helped send us where we are now," and another stated that "it is what has happened. It is a chronicle of the past. . . . History is data that is kept in a file cabinet." They tended to see historians as recorders, those who "gather facts and information and organize the material for future use." Their comments suggested that they considered historical texts as authoritative but almost authorless. They presented themselves as uncritical readers of history in the sense that they were unaware of the role the historian played in shaping meaning. In contrast to the students' archivist perspective, the instructor held an interpretive view, defining history as "our perception and our interpretation of events." For him historians make claims about the relationship of historical events by imposing a plausible

framework on the events of history and by assessing the fit of this framework at different junctures in history.

This semester-long study of students in this history course provides evidence of how students working within a discipline that is new to them can adopt different ways of knowing. Over the course of the semester, as students performed writing assignments that required them to interpret events, most of them took more critical perspectives. At the end of the course, a significant number of students had moved from the archivist view to an interpretive view, acknowledging, as their instructor did, the contribution of historian as author. The study shows clear links between learning about the nature of writing in a discipline and learning about the nature of knowledge in that discipline.

The other study tracing changes over time, Undergraduates Writing in Their Discipline: Learning to Write and Writing to Learn, followed a group of six students from their freshman year to their senior year. We studied changes in their perceptions of writing and authorship in their discipline as well as changes in their ability to perform literacy tasks in their discipline. These students were all psychology majors. (Although we began the study with history majors as well, all of them changed majors or transferred to other schools.)

This inquiry employed a case-study methodology with various measures for tracking students' individual paths of development as they became more immersed in the discourse and the knowledge of their discipline. Data came from interviews, questionnaires, an abstract-writing task, essays about their discipline, a rhetorical reading task (in which they verbalized their thoughts as they read an article), and disciplinary maps (graphic representations of their discipline) as well as papers they wrote for all of their courses. These different sources of information showed students to be moving from an outsider perspective to an insider perspective in relation to their discipline and its discourse. This can be seen, for instance, in the abstracts they wrote based on psychology research articles. The first two years they told us that an abstract was a brief summary that included only the "most important information," but the abstracts they wrote tended to be reader-response statements. It was not until their junior year that they were able to take the

researcher's perspective and include the essential elements of a research study in their abstracts. In their readings of disciplinary texts, they also began to show much more attention to these elements, assuming some authority as they critiqued the rationale for a particular study and the methods used in conducting it. In their essays written at the end of their third year, they wrote about where they as individuals fit into the discipline—something that did not appear in essays written the previous years. The questionnaires and interviews showed students acquiring more awareness of the nature of writing in their discipline. They attributed this awareness, to some extent, to a course in research methods that all took during their junior year and to their own write-ups of a research study for that course. This longitudinal study, like the study in the history class, illustrates the important link between disciplinary knowledge and knowledge of discourse in the discipline.

IMPLICATIONS FOR PRACTICE

The research conducted in Project 4 can inform pedagogy in two major ways. First, the studies show that instructors should carefully consider objectives when designing writing assignments. Different essay assignments, even if based on the same sources, provide different kinds of cognitive challenges and invite writers to construct different meanings (in terms of organization and content). If the teacher's objective is students' acquisition of factual material, essay writing may not be the most appropriate kind of task. Writing is appropriate if the goal is for students to evaluate and to reflect upon the material.

Second, the studies suggest that knowledge of how texts are written in a discipline is interlinked with knowledge of the content of a discipline. Instructors in the academic disciplines can use literacy tasks for teaching the ways of knowing as well as the ways of speaking in the discipline. Learning about the nature of authorship in the disciplines seems to help students become more critical readers as well as more effective writers.

PROJECT 5. UCB Project: *Effective Instruction and Response—Transition to Secondary School in the U.S. and in Great Britain*, a cross-cultural study of response and effective instruction in Great Britain and the United States. Project Director: Sarah Warshauer Freedman.

PROJECT OVERVIEW

The first study in this project examines how students respond to one another's writing in peer response groups in two ninth grade classrooms. The second set of studies compares the teaching and learning of writing in the United States and in the United Kingdom, looking at the work of successful teachers in both countries. The goal is less to compare the two systems than to use the British example to stimulate a new look at our own ways of teaching and to examine them critically and then to see what we have to learn from the contrasts. Although these studies began as an examination of response to student writing, the approach became broader than that, especially as new issues arose as a result of the U.S./U.K. comparisons.

The comparative studies first involved national surveys in both the United States and the United Kingdom. In the U.S. the survey data had been collected as part of an earlier study (Freedman, *Response to Student Writing*, 1987). The sample included 560 elementary and secondary teachers and 715 students at the secondary level. The U.S. surveys were revised for a British audience and then were mailed to a sample of 135 primary and secondary teachers—from England, Scotland and Wales, and from private and state-supported schools. Paralleling the U.S. design, questionnaires were sent to students at the secondary level—in the U.K. to 186 students. Return rates averaged over 80% for the two countries. A full report of the survey design and results is provided in CSW Technical Report No. 14 (Freedman & McLeod, *National Surveys of Successful Teachers of Writing and Their Students: The United States and the United Kingdom*, 1988).

The second aspect of the comparative studies involved a close look at teaching and learning in relatively parallel classrooms in the two countries. For this part of the study, we focus on students making the transition to middle or secondary school (from the equivalent of grades 6-9).

We also focus on classrooms in urban areas, with ethnically and socioeconomically mixed populations. Teachers collaborated with University-based research teams in each country and with a teacher-partner from abroad. The teachers were paired, one in each country, and joined their classes in a writing exchange. Through the exchanges, students in both countries, in their natural instructional settings, carry out parallel writing activities. These parallel activities provide the context for comparing the students' writing, their writing processes, and classroom practices. Also, as the writing is sent from one country to the other, it is possible to observe reactions in one country to what is written in another. We first conducted a pilot year to organize the exchange as an activity. In this year five pairs of teachers participated. For the study, we included four pairs of teachers. Although located in just four classrooms in each country, the exchanges provide multiple perspectives on the teaching and learning of writing in the two countries: the researchers' perspective, the teachers' perspective, and the students' perspective.

As part of the exchange project, the university researchers and the teams of teachers in each country worked together to figure out how the exchanges could become the basis for supportive and exciting learning environments for the participating students. Across the eight classrooms, the teachers succeeded in creating these kinds of learning environments to varying degrees. Thus, the cross-cultural comparisons include not just comparisons of static classrooms but of classrooms in motion as they accommodate a new activity, the exchange. And so across the two countries, the project also involves tracing a process of instructional change and how that process plays out when coupled with a developing and ongoing university-school relationship. A full report on the exchange project is provided in the Final Report for Project 5 (Freedman & McLeod, 1990).

SUMMARY OF FINDINGS

Peer response groups in ninth-grade classrooms

Analyses of the talk of ninth-graders in formally structured peer response groups in two classrooms in the United States shows that they talk productively about the content of their writing

but not about its form and that they refuse to play teacherly roles (especially roles that involve even the most subtle and indirect evaluation of each other's writing).

Cross-cultural studies of the teaching and learning of writing in the United States and the United Kingdom

National surveys of successful teachers and students at the secondary level in the United Kingdom and the United States reveal that teachers in the United States who successfully incorporate writing in their classrooms report that the primary importance of teaching writing is to get students to think independently; in contrast, parallel British teachers are more interested in having students share their imaginative experiences. We need to be alert, on the one hand, to the possibility of mechanically forcing "critical thinking" or "independent thinking" and, on the other hand, of opportunities to nourish the creative and imaginative as integral elements in the development of writing and thinking skills. Through exchanges of writing between students in the two countries, we have examined how students develop what we call their "critical imaginations"; through their writing, as they communicate aspects of their own cultures to foreign audiences, they can be stimulated to think critically about their worlds and come to imagine new possibilities for themselves and others.

The surveys also reveal that teachers in the United States attribute their success to their curriculum and to the "process approach" to teaching writing, while British teachers are more likely to attribute their success to getting to know individual students. This difference appears to be related to the fact that teachers in the United States work within institutional contexts in which it is difficult to get to know individual students while British schools support this value; the different institutional contexts in the two countries both reflect and reinforce the values in the cultures about the importance of getting to know individual students. Institutional differences include the following:

1. At both the primary and secondary levels, in the United States teachers rarely keep the same students for longer than a semester or year; British teachers often teach the same students for several years.

2. British secondary schools span the equivalent of U.S. grades 6-12. Studies of their structures show that they commonly are divided into smaller units called year groups and then tutor groups of approximately 25 students of the same age within a year group. Students take most of their courses with their tutor group with teachers assigned to the group and stay with their tutor group for most of their courses for the equivalent of grades 6-8. One teacher, the "form tutor," is assigned to each group to guide them through their secondary school years. By contrast, although U.S. middle and junior high schools are relatively small, high schools are as large as British secondary schools and have no formal subdivisions.

3. Not just at the primary level but also at the secondary level, mixed-ability teaching is promoted and has become institutionalized in many British schools, especially in the London area. Our qualitative studies in four British mixed-ability English classes show that along with mixed-ability teaching has come reorganized classrooms in which teachers rarely address the whole class for more than five to ten minutes to get the lesson started and to conclude it, but rather work with small and heterogeneous groups to provide more focussed individual attention. The students perform varied tasks at varied rates as they work collaboratively with their peers. Teachers see their job as setting contexts that will motivate students to write in a variety of ways and then negotiating with their students about what they will do. Although much of the professional literature in the U.S. advocates negotiation, it has a different cast than the British ideas about negotiation. In England, one teacher described the negotiation of the 90s as having similarities to the learner-centered classrooms of the 60s but with a "harder edge." There are definite expectations that students will have experiences with all types of writing; what remains flexible is when those experiences will take place, with the classroom structure and school organization set to promote that flexibility. Finally, the focus of the 90s is on community-building with plentiful social interaction and common group experiences, with the community open enough to allow

individual needs to be met but not with the primary focus on the individual. Mixed-ability teaching at the secondary level is relatively rare in the United States, and mixed-ability teaching is not coupled with radical reorganizations of the classroom.

4. The British national examination system is tied to a two-year course of study (during the equivalent of U.S. grades 9-10). The qualitative studies in two examination classes show that this structure supports teachers in taking a collaborative role to help their students do well on the examinations; by contrast, teachers in the United States are the evaluators and are placed in an oppositional role to their students. Although classroom teachers often participate in the grading of the national examinations, they are not the final or only judge. The qualitative studies in the classes of younger students (equivalent of grades 7 and 8) show that even before the examination course, teachers in Britain give few grades (e.g., they rarely evaluate individual pieces of writing but instead evaluate portfolios produced over some period of time).

Qualitative studies in eight classrooms, four in London and four in the San Francisco Bay Area, show that young adolescents (grades 6-9) become engaged by school writing when it is valued not just by the teacher but also by the peer group. This kind of social embedding is critical for important academic activities. When students are completely engaged in their writing, the writing functions in classrooms in ways that students gain status with their peer groups. For some students, doing well in school and writing well is consistent with peer group values; for others, school success and writing are not valued by the peer culture. In these cases, teachers have to build structures that embed writing into the peer culture. For example, as part of this project, students in classes in England and the United States exchanged writing across an academic year. In some of these classes, the exchanges proved highly engaging for traditionally disaffected students; in others they did not. The exchange writing was most successful when teachers created environments in which students could gain status with their peers by "interacting" with the students from abroad. In these cases, they gained peer status (and their writing developed) when they wrote in ways that would allow them to be "recognized" or "heard" by students in the other country. Further, student writing progressed most when teachers understood and made room for

diverse students with diverse needs and when they helped students gain conscious control over what would and would not please their distant audience.

In the eight classrooms in the qualitative study, the writing from England was longer and better developed than writing from students in the United States, except for students in the United States tracked as "gifted," who wrote about the same amount as a British mixed-ability class at their age level.

Teachers of the four British classes in the qualitative study have professional opportunities that do not exist for their counterparts in the United States. These opportunities help the British teachers advance professionally while they remain in the classroom. The opportunities are well-integrated into the institutional structures of their schools and allow successful teachers to contribute to school improvement and receive credit locally for their efforts. For example, some British teachers are in charge of helping "probationers" or first-year teachers, in essence extending the time of teacher preparation beyond the university course. Some teachers assist university lecturers as they meet with and are in charge of clusters of student teachers in a given subject area assigned to their school. When British teachers act as head of their departments, they are selected for their expertise as a teacher and for their ability to keep the teachers at the forefront of their disciplinary area. Such responsibilities carry with them promotions and changes in title. This kind of teacher professionalization also provides leadership to help make needed changes in instructional practice—e.g., the shift to classrooms full of student talk, with teachers assuming collaborative roles; a shift to extended writing that involves students in thinking deeply and using their "critical imaginations."

IMPLICATIONS FOR PRACTICE

These comparative studies show that we could require much more writing from secondary school students, engaging them in lengthy and extended projects which they would complete across time. They also show that teachers can attend to the needs of their varied students and

nurture their development more easily if they teach them for longer than a single year. Students' individual needs can best be met in the context of a close-knit learning community.

Comparisons of mixed-ability (most common in England) and tracked (most common in the United States) classes show important benefits for mixed-ability teaching when such teaching has the proper institutional supports and when teachers reorganize instruction so that they can meet the needs of the varied students in the group. Teachers need to move out from behind their desks and into the classroom, promoting much student talk and gradually helping students assume responsibility for their learning. Teachers need to be flexible enough to encourage students to work on varied projects and to accommodate a variety of student interests and needs; at the same time, they need to be certain that they are setting contexts that will work to encourage maximal student growth.

Even the most disaffected students can be engaged in serious literacy activities in school. For these students, the activities must be designed so that they assume value in the peer group.

PROJECT 6. UCB Project: *Effects of Instruction on Performance in Science and in Writing—Transition to Secondary School*, a five-year study focusing on writing and learning in science. Project Directors: Mary Sue Ammon and Paul Ammon.

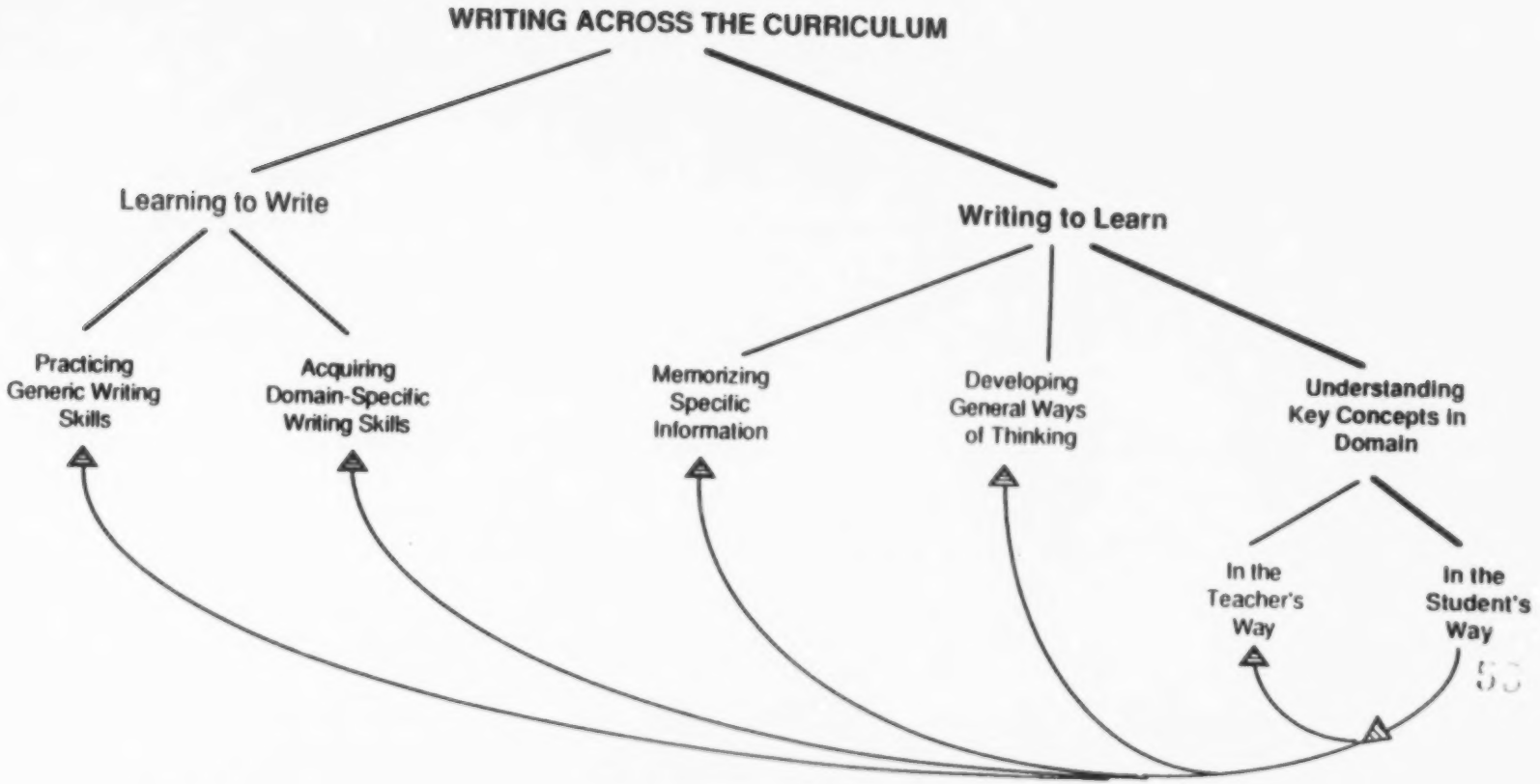
PROJECT OVERVIEW

Despite recent interest in writing across the curriculum, *most current research and practice does not directly address the question of how writing might best be used to help students gain better understandings of the concepts that are central to a given subject.*

This project examined writing as it relates to instruction in science for students making the transition from elementary to high school. However, the overall goal was to generate implications regarding the effective use of writing not only for teaching junior high school science, but for teaching other subjects and other grade levels as well. Thus the project was concerned quite generally with "writing across the curriculum" and "writing to learn." A taxonomy of goals envisioned by "writing across the curriculum" is contained in Figure 1. Bold print is used in the figure to identify the present project's emphasis on students writing about their own understandings with regard to key concepts in a subject, and the curved arrows indicate potential contributions such writing can make to the attainment of other learning objectives.

The decision to focus on a single subject area (science) and a specific age range (late elementary to early high school) reflected two prime considerations. First, advances in the use of writing to learn seemed most likely to come from studies employing detailed analyses of particular, key understandings to be attained in a given subject, and such analyses could be guided by work that had already been done on the development of understandings in science as children become adolescents. The second consideration was the widespread perception that the outcomes of secondary education are especially problematic in science, and that students often fail to attain the higher-level understandings that are required for progress in science as they move from elementary to high school.

Figure 1
Taxonomy Of Goals For
Writing Across The Curriculum



Informed by such literatures as those on writing across the curriculum, on cognition and cognitive development, and on science education, the project was comprised of three major studies. The first involved groups of 12 sixth-graders and 12 tenth-graders who came from urban schools and were quite diverse in achievement level and socio-cultural background. These students were asked individually to perform a series of physical science experiments on displacement and buoyancy of solid objects in liquids, and then to describe and explain, in four separate pieces of writing, what they had observed in the experiments. Their writing was then carefully analyzed to determine how well and in what ways it revealed the conceptual understandings that had been uncovered by clinical interviews with the students while they were performing the experiments, and to see how their writing varied across problem content.

The second study was based on observation of two ninth-grade physical science classes twice a week for an entire school year in a large suburban high school. These classes were taught by an experienced and highly regarded teacher who had been making frequent use of writing as a part of his instruction for some time. One class was enrolled with 26 students in the school's low, "non-academic" track, while the other class contained 31 students in the high, "honors" track. The students in both classes were, again, quite diverse in terms of socio-cultural background. In addition to observing, the investigators collected samples of all the writing the teacher had the students do (notes, assignments, exams, etc.), and interviewed both the teacher and students about their experience with the use of writing in science. The investigators and the teacher also collaborated in trying out some new writing activities. The purpose of this work was to determine exactly how writing was or might be used and perceived by participants in the two classes, as a basis for considering more generally how writing could best be used to facilitate concept learning in a classroom setting, and as background for the project's third study.

Study 3 was carried out in both of the ninth-grade classes during the spring semester. Students were asked to perform and write about some experiments on displacement and buoyancy similar to those used in Study 1. In this case, however, the experimenting and writing were done as regular laboratory and class activities. In addition, two days later, all students were asked to

reread and revise what they had written immediately after each of the laboratory sessions, and—prior to revising—some students met with the investigators in one-on-one conferences to review and discuss what they had said in their original pieces of writing. The principal goal of this activity was to explore the effects of experimenting, writing, conferencing, and revising on the students' understandings of displacement and buoyancy. Thus pre- and post-test measures of content understanding were administered before and after each of the laboratory-plus-writing sequences.

SUMMARY OF FINDINGS AND IMPLICATIONS FOR PRACTICE

This section contains a discussion of the results of our research and the pedagogic implications of these results.

1. *Writing can be an effective and efficient way to reveal different levels of understanding that students have of scientific content and, therefore, it provides a good basis for arranging further learning experiences that are geared to the students' current levels of understanding. However, current teaching practices frequently do not include the type of writing that can best achieve these purposes.*

Observations from this project on the writing activities in content area classrooms (Study 2) are in accordance with those who report that a majority of content area teachers are more inclined to use writing to help students review information that has been presented in texts or lectures, than to assess students' initial thinking or to help them reformulate and extend their knowledge. However, when students try to reproduce a "correct answer" already provided them, their writing frequently reflects the learning of memorized phrases and scientific terminology, and generally provides few clues into their own thinking before or after instruction.

To illustrate the problems associated with writing about received information, a student, Frances, was assigned to use a "mind map" as a basis for summarizing what had been taught on the topic. Frances was able to perform this task by stringing together phrases and terms from the mind map, and did so well enough to receive full credit for the assignment. However, she provides no evidence that she understands the sequence of events in beach formation. A look at

her writing on her exam makes it obvious that the "mind map" represented in only a very indirect way the kinds of problems that were present in her thinking about the process of erosion and the movement of sediments by streams, ocean currents, and waves. The terms and phrases she provided tended to mask difficulties in her conceptualizations.

In this project, the results of three studies have suggested that explanatory writing is much more likely to reveal conceptualizing when it is produced *before instruction* and in response to problems with which students have had some experience, but are not yet likely to have conceptualized in a completely differentiated and integrated way. An example of this type of writing is found in response to the "cork and bottle" experiment which students in Studies 1 and 3 performed and wrote about, without prior instruction. In the experiment, the release of the cork from the tank of water into the bottle causes the water level in the bottle to drop, while the water level in the tank remains the same. As shown in Table 1, students have several different ways of explaining the drop in bottle water level, and these different explanations reflect qualitative differences in their understandings about volume, density, displacement, buoyancy, physical forces, air as substance, and so on, all of which are of general relevance to physical science. Julie's writing represents a way of thinking about the experiment that is listed as number 3 in Table 1:

> When I released the cork, the cork floated to the top of the bottle. The water level in the bottle went down while the water level in the tank went up. I think this is because the cork took up some of the space in which the air occupied. But the air has nowhere to go inside the bottle but down. So the air pushes the water and cork down and occupies that space. The amount of water actually in the bottle, thus, lessens. The water that was in the bottle has to go somewhere and the only place it can go is in the tank, so it goes into the tank, making the water level in the tank go up so there's more water in the tank.

It is interesting to note that Julie, like many other students with the same way of thinking, reported a rise in the tank water level that did not actually occur—apparently because such a rise seemed consistent with an explanation in which the movement of water from bottle to tank was not closely associated with the cork's movement from tank to bottle. Thus, students' understandings are revealed not only by their explanations but also by their descriptions of what they have observed.

Table 1
Types and Characteristics of Conceptualization
"Cork and Bottle" Displacement Experiment

Ways of Thinking about Experiment	Qualitative Characteristics of Thought
1. (Because of the greater density of water, gravity pulls more strongly on the water than the cork, and thus) water displaces the cork upward and fills space previously occupied by the rising cork, making room for the air that the cork displaces when it breaks the water's surface.	Uses single system to explain all results; Has sense of mechanism; Reconstructs progressive transformations; **Has external forces version of displacement;** Understands role of density & volume in displacement; Differentiates inferred event (water movement) from salient result (bottle water level drop).
2. The cork displaces (or forces) some water out of the bottle (and may then fill some of the space previously occupied by the air).	Uses single system; Has sense of mechanism; **Reconstructs transformations;** **Clearly focuses explanation on displacement;** **Has quantified & general understanding of volume** but may overexclude other factors; **Differentiates inferred event** from salient result.
3. The cork displaces (or pushes on) air in the bottle, which then displaces (or pushes) some water out of the bottle.	Uses single system for all asserted results; **Has sense of mechanism**; Centers on end result and reconstructs causality forward from that point; **Focuses on either displacement** or "local force" (force inherent in cork) **Has generalized notion of volume** (e.g., applied to water, cork, and air).
4. The rising cork breaks a barrier as it passes through the mouth of the bottle, allowing water to escape from the bottle (and possibly letting or bringing air in).	**Uses single system for changed state "observations"** but tank result (absence of change) not integrat Sees object (cork) only as local force, not as occupying space; Views air/water pressure as static equilibria (not active forces).
5. The weight of the floating cork pushes the water down (and the air may expand to fill the space at the top of the bottle).	**May explain both bottle "results"** (but separately); Sees cork as force, not occupying space; Exclusively focuses on role of object "weight" in displacement; Shows **some differentiation of air & space**
6. The cork absorbs some water inside the bottle or the cork takes more air to the top of the bottle.	Focuses on single salient result; **Has qualitative**, but nongeneral **sense of volume.** Centers on properties of object material salient in flotation (**beginning qualitative appreciation of density**)
7. A sinking object normally makes the water level rise, so a rising object makes the water level fall.	Focuses on single salient result; **Analyzes similarities & differences between displacement situations & applies negative operation** to result; Views cork as occupying 2-D position, not 3-D space.
8. An object put in a container of water makes the water level rise, but since the container is upside down, the water level in this case falls.	Focuses one at a time on surface correspondances of objects and end states in associated experiments; Links 1 to 1 correspondances to causal judgment (Judgment results from surface compensation of single, salient result); Views objects as having particularized, dynamic, qualities; Only partially separates size dimensions and weight

This sort of relatively brief writing activity, sequenced at the beginning of a unit of study, seems likely to have the advantage of being seen by content area teachers as more connected with the teaching of subject matter, and as less problematic in terms of the necessity and manner of grading. Despite the call by many writing researchers for more extended writing in the content areas, long research papers or essays may not always promote either better thinking or better writing. Perhaps the goal of having students "think more deeply" has been mistakenly interpreted as implying that they must therefore write at greater length. It seems more likely that teachers in subject area classes will implement short explanatory pieces of writing because they can be repeatedly integrated into instructional sequences and are not seen as conflicting with a teacher's subject-specific goals. Such writing has the potential of benefiting the learning of subject matter if it is used to make students' thinking explicit, so that further classroom discussions and activities make better contact with their ways of conceptualizing.

Observations of the implementation of short, more constructive pieces of explanatory writing also suggest that students who vary widely in age, school achievement, and English literacy skills can and will do writing of this sort. They see such writing tasks as more manageable and engaging than most, because they are not being asked to reproduce someone else's reasoning, which they may not have understood. Some students with previous histories of nonparticipation and failure to submit written assignments have willingly performed such writing for this project, sometimes persisting in their writing efforts for surprisingly long periods of time.

Though students' past experiences vary, and though the specific content of a situation affects the reasoning strategies students use, there is remarkable consistency with regard to the difficulties students have in explaining particular science phenomena and with regard to the alternative types of explanations they offer for those phenomena. Most science educators today have begun to realize that unless instruction deals with initial conception, students will not integrate and use new information in other problems and contexts. The short samples of constructive explanatory writing collected in this project have proved to be rich in information which can be used to make hypotheses about student conception. Moreover, our analysis of data from the first

study showed a remarkable degree of correspondence between estimates of students' thinking based on writing and those based on more extended clinical interviews.

By characterizing various types and dimensions of conception regarding problems presented to students, and by identifying ways in which writing reveals conceptions, this project has focused on the intellectual struggles and partial insights that mark conceptual development, rather than on "misconceptions" which (to use a sickness metaphor) must be diagnosed and cured. Frameworks such as the one in Table 1 have already proven helpful in communicating to teachers how knowing and learning in a content area such as science might be redefined, and how writing can function as a means of formative evaluation in a classroom focused on conceptual change rather than the acquisition of information.

2. *Certain features of student writing seem to be especially useful for distinguishing different levels of content understanding, while others seem more related to age and to general development in the ability to perform academic writing tasks.*

In Study 1 of this project, a contrastive analysis was performed on writing samples produced by sixth- and tenth-grade students with higher- and lower-level content understandings, as established by means of interviews conducted with them while they performed the experiments they subsequently wrote about. The goal of this analysis was not only to find differences in the writing of students at different levels of conceptualization, but to determine whether the differences in writing identified empirically made sense theoretically, in terms of the ways students were thinking about the particular science content.

Students with better understandings of the experiments wrote longer pieces and devoted a greater percentage of their writing to explanation than to description. This general result makes sense in that such students seemed able to generate more coherent and unifying causal principles to account for all the observed phenomena (see Table 1 for the development of this "single system" qualitative characteristic across the ways of thinking about the cork and bottle experiment). Students with better understandings also more often reconstructed transformations by elaborating object movement sequences, using direct expressions of causality in their explanations, and

referring less often to general object features or qualities of the materials in the experiments (see, for example, the explanations by Adam versus Eric and Sam in Table 2, or the contrast between the second and the sixth ways of thinking about the cork and bottle problem in Table 1).

Students who thought about the content in more advanced ways were more likely to differentiate key concepts lexically. That is, they tended to signal their understanding of important conceptual distinctions by employing different linguistic expressions for them (though these sometimes deviated from accepted scientific terminology). An important aspect of conceptualizing that affected explanations regarding all four of the experiments was the extent to which students' ideas about volume and density could be applied generally to all substances. For example, some students, like Wells and Eric, understood that air is a substance of low density, rather than something without substance, and they signalled this understanding in their writing by their consistent choice of different terms for air and space (see part 2 of Table 2). Other students, who were confused in their conceptualizations of air, either used *one* term to mean both space and a less dense/lighter substance (see David's use of the term "air" and Kerry's use of the amalgamated expression "air space") or, like Adam, used separate terms ambiguously and inconsistently.

Students who understood buoyancy better used more comparative and contrastive expressions in their writing, which probably stemmed from their desire to express contrasts among the densities of different objects and liquid media that produced different results with regard to floating and sinking. For example, Eric's comparative statements that "the molecules of liquid B are more dense than those of A" and "the molecules of A were not dense enough to support the object" indicate that he saw liquid B as being higher than A on a single continuum of density (see part 3 of Table 2).

In contrast to these examples of writing features that are related to level of conceptualization, features related more closely to age had to do with overall organization, rhetorical focus, and the orientation of the writing to the specifications of the prompt. For example, younger students tended to create connections between sentences by repeating rather than paraphrasing or pronominalizing predicates, and they tended to make fewer connections between

Table 2
Examples Illustrating Features of Student Writing Related to Level of Conceptualization or Age

1. Qualitatively Different Explanations

Elaborated object movement sequences with direct expressions of causality

ERIC--GRADE 10--MEDIUM TASK: "The molecules of A were not dense enough to support the object."

SAM--GRADE 10--CORKS TASK: "The water couldn't flow out of the bottle, or the air would be forced to fill the empty space, thinning, creating a partial vacuum, and sucking the water back in.."

Stative descriptions of object features

ADAM--GRADE 10--MEDIUM TASK: "...the substance of liquid B didn't have anything in it to make the tire float."

2. Lexical Differentiation

Differentiated Linguistic Expressions

WELLS--GRADE 10--CORKS TASK: "When the cork reached the surface of the water in the bottle and floated there, it took up some space (air-space) which had previously been filled by air molecules. The air molecules had to have somewhere to go so..."

ERIC--GRADE 10--CORKS TASK: "Because the cork is light and has air in it, it will float. Wherever it is, it will take up space. When it is at the top of the liquid in the bottle, it will take up space the air there used to occupy..."

Single Term or Inconsistent Terminology for Different Concepts

DAVID--GRADE 6--CORKS TASK: "I think when the cork went in some of the water left because the [cork] needed more air. I think that with the air the cork floated."

KERRY--GRADE 6--CORKS TASK: "...I then put two more corks in...The air space went up, or got more space, and the water level in the tank stayed the same. If more corks were released...the water level would go down, and the air space, larger.

ADAM--GRADE 10--CORKS TASK: "The reason the air left in the bottle got bigger is because the cork took up more space and forced the water level down. This provided more room for the air to occupy...If more corks were released under the bottle...the amount of air in the bottle would be greater."

3. Predicate Cohesion

Comparative and Contrastive Expressions

ERIC--GRADE 10--MEDIUM TASK: "The molecules of liquid B are more dense than those of A...The molecules of A were not dense enough to support the object."

Predicate Pronominalization and Paraphrase

WELLS-- GRADE 10--CORKS TASK: "When the Cork was released underneath the bottle, it floated up until it was partway above the surface of the water in the bottle. When the cork did this a number of changes occurred. The water level in the bottle went down, the water level in the tank went up. The reason for these occurrences can be explained by displacement. When the cork reached the surface of the water in the bottle and floated there, it took up some space (air-space) which had previously been filled by air molecules."

Predicate Repetition

DAVID--GRADE 6--CORKS TASK: "When I put a bottle of water upside down and let a cork go though the top of the water the water level sank. I think the water level sank because when the cork went into the bottle some of the water was pushed out. I think when the cork went in some of the water left because the [cork] needed more air. I think that with the air the cork floated."

nonadjacent sentences (contrast David's writing with Well's in part 3 of Table 2). They also were less likely to focus on the central events to be covered as directed in the prompt.

Although the differences in writing associated with age or grade level might be attributed to differences in overall writing skill, it does not appear to be true that lower-level writing skill *prevents* students from expressing their thinking. While the sixth-graders in Study 1 generally wrote shorter pieces than the tenth-graders, some sixth-graders were classified as understanding the content as well as or better than some tenth-graders. In addition, some students in a tenth-grade science class for language-disabled students were able to communicate high levels of conceptualization in their writing, even though their pieces were clearly less satisfactory in terms of the quality of exposition.

In sum, it seems likely that a knowledge of conceptually relevant writing features, together with a knowledge of the conceptual levels they relate to, would help teachers to make good use of student writing in understanding where students are in their thinking about content, and in planning further experiences to promote better conceptualizations of the subject matter.

3. *Writing samples such as those collected for this project could be used as examples in training teachers to assess students' content understandings through their writing.*

Samples of student writing from the present project have been shared and discussed with several audiences of educators, such as classes of student teachers, an entire high school faculty, a statewide conference for school district administrators, and a national seminar for elementary and middle school principals. Interest in the writing samples has generally run high among these educators, and they have at least begun to appreciate the kinds of insights that such writing can provide, even though they have only had—at most—very brief introductions to the kinds of content understandings that can be revealed through the writing, and to the kinds of text features that tend to signal differences in understanding.

These observations are encouraging. They suggest that the use of writing for ongoing assessment of students' understandings is something that makes sense to practitioners, and that it would be worthwhile to engage teachers in more systematic and extended efforts to help them

become effective users of writing for this purpose. Teacher training efforts of this sort would be informed by research that examines the ways in which students come to understand key concepts in a given subject, and the ways in which their understandings are likely to be revealed in writing, as in the present project. Also important for teacher training are data on the most productive ways for teachers to respond to and follow up on whatever writing their students have done.

4. *Writing assignments seem more likely to contribute to better understandings when they are treated not just as ends in themselves, but as steps toward further instructional activities.*

Immediate follow-up activities might include discussions focused on the ideas expressed in students' writing, or additional laboratory experiences involving variations on experiments the students have written about. Eventually students might be asked to write on new topics involving similar concepts. Teachers would attempt to plan and guide these activities in light of the understandings revealed in the earlier writing. For example, students who wrote something like Julie's piece about the cork and bottle experiment could profit from further discussion of exactly when water began leaving the bottle after the cork was released. They might also perform and write about a variation of the experiment in which the cork is released into a bottle filled completely with dyed water, to demonstrate the independence of water leaving the bottle from a drop in the water level (which would not occur in this case).

The present emphasis on coordinating writing with follow-up activities is not meant to deny the possibility that students might immediately gain new insights from the initial experience of writing itself. In the interviews conducted as part of Study 2, many students reported that writing in class sometimes helped them realize that they did not understand the content as well as they had initially thought. Moreover, some students in the higher track said that such a discovery would lead them to more thinking on their own. (In contrast, lower-track students said they would ask the teacher to explain what they did not understand—apparently because they were not accustomed to the thought that they might have relevant ideas themselves.) There was also evidence of students occasionally changing their thinking about the content in the very process of generating a piece of writing. But these instances of progress in learning based entirely on one's own activity

as a writer seem rather modest and limited in comparison to what might be accomplished through further instructional activities that are informed by and focused on the understandings already expressed in writing.

Post-writing discussions might also include attention to the ways in which students' understandings have been expressed. However, a focus on the writing itself does not appear to be particularly useful if the goal is for individual students to exercise some initiative in revising their own writing—at least not with young students who are relatively inexperienced with the kind of explanatory writing emphasized here, or with the process of revision. In Study 2 it was found that students in the two ninth-grade science classes generally did little writing about their own explanations, and were not asked to do any revision at all. Then, when they *were* asked to revise the explanatory pieces they had written in Study 3, they tended either to make rather minor changes or to make no changes at all—even those students who were asked to reread and reconsider their original writing in individual conferences with the investigators. On the other hand, conversations focused on exploring the ideas that students had expressed in their writing did provoke some new thinking. And, in subsequent class discussions, some students in the higher-track class went even further in proposing new hypotheses and experiments, much to the delight of the teacher.

While revision does not appear to be a very productive sort of follow-up activity, subsequent writing on a conceptually-related topic may be more promising. This sort of writing would have the advantage of providing longitudinal data on a student's progress in coming to understand key concepts over longer periods of time, consistent with the current interest in portfolio assessment. It would also emphasize the goal in science of using the same key concepts to explain a wide range of phenomena, and the goal in science instruction of helping students understand such concepts in a truly general way.

In addition to promoting better content understandings, a more extended approach to writing to learn—combining writing-based assessment with follow-up activities and with subsequent writing involving the same concepts—may also foster development in writing and in the ability to learn through writing itself. This hypothesis is supported by the finding in Study 1

that more elaborated writing generally goes along with more elaborated thinking about the content, and by theoretical arguments regarding the importance of a "constructed audience" in the writing process—an audience whose questions and concerns may be better appreciated after the writer has participated in discussion of the content with a real audience.

PROJECT 7. Center for the Study of Reading Project: *Synthesis of Research in Writing and Reading*, a project to provide information to practitioners about what is known about reading and writing relationships and to set the agenda for future research.

PROJECT OVERVIEW

Do children become better readers and more effective writers when reading and writing are taught separately or when reading and writing are taught in tandem? Do young children who are encouraged to write about things they have read and to read aloud what they have written become more enthusiastic and motivated learners? These questions and others like them concerned with effective ways to teach writing and reading were the focus of Project 7.

In the everyday world, the ability to integrate writing and reading skills is required at almost every turn. Candidates for even the most menial jobs are generally expected to read, comprehend, and complete employment applications. Professional and white-collar workers are routinely called upon to write memos, letters, reports, and proposals that reflect some degree of clarity and organization.

In the classroom, however, writing and reading are sometimes taught as separate subjects, and one result has been the separation of comprehension skills from communication skills, both of which are crucial to learning and critical thinking. As data from the 1981 and 1986 National Assessment of Educational Progress make clear, many of today's high school students are incapable of writing an effective persuasive essay, are unable to respond critically to essays written by others, and cannot generate an analytical response to what they have read. It is hardly surprising, then, that educators are increasingly recognizing the advantages of combining instruction in these subjects.

Project 7, a collaborative effort with the Center for the Study of Reading at the University of Illinois, Urbana-Champaign, was designed to synthesize information on the integration of reading and writing in the classroom. The results are reported in *Collaboration Through Writing and Reading: Exploring Possibilities*, edited by Anne Haas Dyson and published by the National

Council of Teachers of English. The six chapters of the book address basic questions about reading and writing relationships that are rich in their implications for literacy teaching and learning. Specifically:

- What similarities and differences exist between writing and reading?
- How do people of varied ages use writing and reading in the home and in the school?
- How have writing and reading traditionally been used in the classroom? What historical forces have influenced how writing and reading are taught in schools?
- How does learning to read help one learn to write, and vice versa? How do both writing and reading help students to learn in all areas of the curriculum?
- What are examples of recommended good classroom practices for integrating reading and writing with each other and with a variety of classroom activities? What kinds of support do teachers need in order to bring about desired curriculum changes?

RESULTS AND STRATEGIES FOR PRACTICE

While there is no simple prescription for integrating reading and writing in the classroom, teachers may plan for such integration by considering how their students might read, write, and talk about information in complementary ways across all areas of the curriculum. Educators who use language processes in such integrated ways report social and personal growth among students as class members, growth in their overall reading and writing proficiency, as well as improvements in their learning, comprehension, and critical thinking in language arts and content area activities.

For example, in Columbus, Ohio, middle school and high school teachers use a cycle of writing and reading activities that tie together exploration of themes from literature, such as "fear" and "courage," with the study of how the author uses such literary devices as plot and character development to convey those themes. By using Edgar Allen Poe's "The Tell-Tale Heart," for instance, students explore the theme of "irritation" and the ways in which the writer's choice of words help the reader understand the way his characters feel.

Before reading the story, the students discuss various people and circumstances which arouse feelings of irritation in them. They are then asked to write a description of the circumstances and to describe their reactions as vividly as possible. After writing for five minutes or so, students share their developing texts and discuss their reactions to strategies each student-writer uses.

The teacher then directs the class to read "The Tell-Tale Heart" and encourages students to share their enjoyment of Poe's craft and his ability to give the reader an appreciation for the irritation his characters feel. They discuss examples of Poe's descriptive language, and while some students will claim that their own essays are more realistic, most revise and enhance their texts by using more descriptive language.

These kinds of writing assignments strengthen the students' desire to read, and the reading that they do improves their writing. By combining reading and writing activities, the students are better able to compare their individual experiences and the strategies used to present them. The Columbus teachers comment that, overall, the young people become more committed to the writing and reading processes. Those who are normally reluctant to write or read become more interested, and, more important, their interest involves reflection, self-assessment, and critical analysis of the text they read and the text they generate.

Another sample approach involves a kindergarten class also in Columbus, Ohio, in which the teacher shares wordless picture books with her class and then gives the students the opportunity to write their own stories to accompany the pictures. In one instance, one young writer approached the teacher and commented that she no longer liked what she had written, because she failed to tell what the characters were thinking. The teacher asked her to rewrite the story, thus providing the student with the opportunity to develop her ideas further.

The rewrite gave the student a chance to explore her understanding of written text—its structure, the use of dialogue from a reader's perspective, and the relation between pictures and texts. In a single week, the child's spelling improved. Across two drafts, she included 92 words, of which 52 were different. Among 20 words in common from the two drafts, 50 percent were

spelled correctly, 15 percent moved toward correction, and 15 percent became correct in the second draft.

Project 7 offers several other illustrations of approaches to integrating language processes in the classroom. When writing and reading are used to explore topics in literature, students' understanding of the text may improve, their understanding and appreciation of the author's craft may be heightened, and their attitudes toward learning improved. When used together in the elementary grades, writing and reading afford students the opportunity to learn conventional spelling and conventional forms, enhance their ability to clarify and elaborate on ideas, and help to develop their skills in reading critically both their own writing and the writing of others. When used together in the content areas (e.g., history, biology), writing and reading become vehicles to explore issues, solve problems, and discover new questions.

The above examples are only a few of the many instructional approaches teachers can use to improve student literacy through integrating reading and writing. What is important is that writing and reading can offer more if they are taught in tandem rather than if taught separately. Students who are taught that reading and writing are collaborative activities often manifest greater motivation to learn, express themselves more clearly, and are better able to evaluate themselves and to understand the world around them.

PROJECT 8. UCB Project: *Oral and Written Language*, an investigation of the process and product of writing, set against the background of oral language production. Project Director: Wallace Chafe.

PROJECT OVERVIEW

Project 8 has investigated similarities and differences between spoken and written language. People usually pay little attention to the way they talk under ordinary circumstances, since the kind of language discussed in a school environment is almost always written language or, to a limited degree, more formal modes of speaking. Although ordinary conversational language is what most people use most of the time, our educational system has not recognized the relations between that kind of language and the kind of language students are expected to write. Speaking and writing are very different activities that often produce varieties of language which, when one examines them systematically, appear to be quite distinct. This project, however, has been especially concerned with pinpointing ways in which written usages emerge from spoken ones. By identifying the seeds of writing in ordinary, conversational language, the project has aimed to give students the ability to relate unfamiliar, unpracticed writing habits to habits of speaking that are already totally familiar, though unconsciously so.

Language is produced under two very different conditions. In speaking, people move their lungs, throats, and mouths to make noises that pass through the air and strike the ears of other people who are usually in the immediate vicinity. In writing, people manipulate pens, pencils, brushes, or keyboards to make marks that are usually seen by others at times and places quite distinct from when and where the marks were made. Speakers, sharing a time and place, are usually free to interact, the person who produces the language at one moment becoming the person who receives the language at the next. Writers, not sharing a time and place with their audiences, usually find direct interaction impossible. Written language has adapted itself to this peculiar environment by extending and modifying available linguistic resources to make them more appropriate to the writing situation. Writers enjoy the freedom to fashion language in special ways

that suit their special purposes. Nevertheless, the things they do with language are seldom if ever completely foreign to spoken language, and it has been the goal of this project, not just to produce a clearer understanding of spoken and written differences, but to identify particular features of spoken language that writers build on to create effects that may at first seem peculiarly literary.

The project used an oral database consisting of samples of conversational language from a varied population: three missionaries, a used-car salesman and his cousin, a group of students preparing dinner, two farmers, and a mother and her two adult daughters having lunch together. These materials were supplemented with twenty dinner table conversations recorded and processed for an earlier study. The written language database included a variety of genres: personal letters, academic papers, biographies, newspaper and magazine articles, and samples of written fiction from different periods and styles. The conversational and written data were also compared with varied samples of oral literature in an American Indian language unaffected by a tradition of writing.

SUMMARY OF FINDINGS

The results of the study were rich and diverse, but they can be illustrated with three specific areas in which writing was found to extend or modify usages already present to some degree in speaking. The first area involved a comparison between spoken prosody (pitch, stress, voice quality, volume, tempo, and so forth) and written punctuation. The second involved what would be thought of as a point of grammar: the way speakers and writers use grammatical subjects. The third had to do with the treatment of immediate and displaced subject matter.

Prosody and Punctuation. One way in which writing appears to differ from speaking is in the absence of "prosodic" features of language that depend on sound as opposed to sight. The project began by investigating the extent to which written punctuation reflects a "covert prosody": a recognition by writers and readers of prosodic factors that writing is often thought to lack; in other words, the experiencing of auditory imagery as one is writing or reading. Whereas grammarians, true to their profession, have often held that punctuation is for the most part

determined by rules of grammar, this study found that prosodic factors actually play a predominant role in punctuating. The conclusion was that the effectiveness of written language is considerably influenced by an ability to use punctuation in ways that meaningfully reflect the writer's prosodic intentions. The finding suggested that increased attention to prosodic usages in ordinary speech and the way they may be represented in writing will be a positive step in improving writing quality.

Grammatical Subjects. The project investigated a number of features that would traditionally be assigned to the area of grammar. Realizing that teaching "grammar" in isolation has been shown to have no effect on the quality of students' writing, the project looked forward to new approaches to language structure that will enable students to appreciate how the form and function of language interact.

One such domain of interaction involves grammatical subjects. Grammatical subjects have a clear formal identity in the English language, and functionally they supply starting points for adding new information as a speaker or writer expresses a sequence of ideas. It has been fruitful to examine the extent to which subjects communicate already "given" ideas, in the sense of ideas assumed to be already active in the audience's mind, as opposed to "new" ideas, those that are newly activated within a particular discourse. It was found that grammatical subjects expressing new information are quite rare in ordinary speaking. When they do occur, they were found to exhibit two consistent properties: they are of trivial importance to the progress of the discourse, and the speaker assumes that they already belong to the listener's knowledge base, to be information that is already shared. Most of the few new information subjects that occur in conversational language, furthermore, function as sources of reported information: "Dr. Williams told me . . ."

Writers are free to extend the use of new information subjects, but they do so to varying degrees, always preserving some of the constraints discovered in conversational language. In a Hemingway work it was found that the author maintained the conversational constraint that only items of trivial importance are used as new information subjects. There were, however, a few cases of unshared information whose treatment as subjects had the deliberate effect of introducing

something with an element of suddenness and surprise. Thus, although Hemingway adhered for the most part to the constraints of ordinary speaking, he exceeded them in a few instances to make the reader share in a feeling of surprise that was experienced by his story's protagonist. A century earlier, on the other hand, Hawthorne went much further in departing from spoken language norms. Although nearly all of Hawthorne's new information subjects were also of trivial importance, nearly all of them were unshared information, and they were verbalized in elaborate noun phrases that included much identifying information. In this and other respects, Hawthorne's language diverged considerably from spoken language norms, but in a calculated and, for his purposes, highly effective way.

Among the samples of nonfiction writing that were investigated, a passage from *Time* magazine was found to be different still. The *Time* writing resembled Hawthorne with respect to several properties of new information subjects: there were many of them; they were, with few exceptions, of trivial importance to the content of the article; and none of them conveyed shared information. Most of them, however, differed from Hawthorne's new information subjects in expressing a single function; they were sources of reported information: "Foreign Ministry Spokesman Gennadi Gerasimov responded angrily . . ." Most new information subjects in conversational language play this same role of information source, which has been extended and exaggerated to fit the special needs of journalistic writing.

Immediacy and Displacement. One of the most remarkable properties of human consciousness is its ability to focus on information that is not immediately available through its interaction with the environment. This ability is so basic a part of human experience that it is seldom noticed or remarked upon, but its importance to human thought and language is profound. Without it, people would be condemned to experiencing only their immediate perceptions, actions, and feelings. With it, they are able to think, talk, and write about experiences they recall from the past, project for the future, or simply imagine. Displaced consciousness is crucial to language, with respect not only to what people talk about, but also to how they talk about it.

The project found that the language used to express immediate and displaced experience differs in a variety of ways. Ordinary speaking may be in either the immediate or the displaced mode, and different kinds of language result. Because writers and their audiences are removed from direct contact and interaction, the immediate environment is usually much less relevant than it is for speakers, with the result that writing deals almost exclusively in displaced ideas. Fiction writers, however, may create special effects by transferring properties of immediate language to the expression of displaced subject matter. In so doing they can create the illusion that as the language is being written and read, an immediate experience is being relived. When the displacement is into the past, the effect is that of a fictional narrator who has an unconstrained ability to recall past events. But the displacement may also be with respect to the identity of the conscious self, and in that case the language allows a reader to relive the experiences of a third person. In short, while the distinction between immediate and displaced experience is already represented in conversational speech, extending properties of immediate language to other times or other selves is a resource that fiction writers can exploit with often powerful effect.

The project also explored consequences of the fact that writers of both fiction and nonfiction may not represent an experiencing consciousness at all, but may pretend a detached or omniscient point of view. While the absence of a represented consciousness may seem to depart most strongly from ordinary spoken language, in fact it has its seeds in episodes of speaking that report information acquired from others in prior conversations. Such third person reports, common enough in conversational accounts of others' experiences, provide a model for usages that appear in even the most detached varieties of expository writing.

IMPLICATIONS FOR PRACTICE

These briefly mentioned features suggest a few of the ways in which writing may draw on resources incipiently present in conversational speaking to accommodate the special demands of the many varied purposes for which writing is used. The findings of this project that have been disseminated to date have been well received by teachers, and further dissemination directed

toward the teaching profession is planned. The immediate major product of this project, however, is a book-length work titled *Discourse, Consciousness, and Time: The Flow and Representation of Conscious Experience in Speaking and Writing*. Its primary audience will be researchers in linguistics, education, English, and psychology, but articles based on it will be directed at writing teachers.

Coordinate endeavors within this project have involved the provision of tools for research on relations between spoken and written language. An extensive review of the literature on this subject was prepared and published collaboratively with Deborah Tannen. Other publications that emerged from the project in the category of tools include an article on methodology, and three articles to appear in the *Oxford International Encyclopedia of Linguistics*. The preparation of a large computerized corpus of spoken American English has begun at the University of California at Santa Barbara, and it will eventually provide what is contemplated as a widely used source of data on this most basic use of language.

Finally, the Project Director's experience with Native American oral traditions has led him to compare features of spoken and written language with differences between various genres of oral performance. The finding that oral literature mirrors some of the features of written literature suggests the value of more classroom attention, not just to writing, but also to uses of speaking that diverge from ordinary conversation. Awareness of similarities and differences across all genres of language use, spoken or written, and of the varied purposes and effects achieved by these multiple options for language, is expected to contribute to clearer understandings of the resources that are available to both speakers and writers. By placing writing within this broader context of varied language use, the findings of this project will encourage teachers and students to integrate more unfamiliar habits with more familiar ones, and thus facilitate and enrich what they do with language in all its manifestations.

PROJECT 9. UCB Project: *Effects of Instruction on Performance—Transition to the University: Expectations of Excellence*, a study of the similarities and differences between textbook characterizations of successful student writing and the features of first-year college student texts judged to be successful by their teachers and a panel of expert judges. Project Directors: Donald McQuade and Nancy Sommers.

PROJECT OVERVIEW

Project 9 focused on understanding the writing of students who were successfully making the transition from the high school to the university setting with its more stringent requirements for academic discourse. By identifying the characteristics of award-winning essays written by freshman English students and juxtaposing those characteristics to traditional standards of excellence—such as textbook prescriptions as to what constitutes successful prose—we hoped to characterize and to provide a theoretical base for understanding what is praiseworthy about student writing. In so doing, this project stands in contrast to much previous work on college writing, which has sought to identify and prevent errors in students' texts, especially those by student writers labelled "basic." It differs as well from the usual focus of college textbooks, which typically catalogue lists of errors and offer advice for avoiding them. A related goal of this project, then, was to begin to refine and redefine the profession's understanding of what constitutes successful student writing, to orient college writing instruction toward helping students learn "patterns of success" rather than teaching them how to avoid errors.

SUMMARY OF FINDINGS

Metaphor as an indicator of excellence

Although scholars and researchers have paid a great deal of professional attention during the past two decades to identifying the cognitive strategies employed by writers as well as to the benchmarks of the texts that "basic writers" produce, there have been few corresponding efforts to identify the features of student writing judged to be successful. Composition theorists,

researchers, and practitioners have been far more conversant with the fundamental flaws of student texts than with the features that distinguish successful student writing. It has also been the case that professionals engaged in the study and teaching of writing have relied on imprecise assessments of what constitutes the features and patterns of successful student writing. This problem is exacerbated by the imperatives that condition the "how-to" advice of many composition textbooks, strategies that are dominated by formulaic prescriptions for students to avoid error rather than to exercise increasing authority over techniques designed to express the meanings these students have. Thus, the first goal of Project 9 was to acknowledge the richness of expository essays written by students.

Through an examination of several hundred prize-winning essays written by first-year college students, we found that the nature and extent of the use of metaphor was a key indicator of excellent student writing. That is, the essays judged successful used metaphor often and at multiple textual levels. At the lexical level, students worked with simple images:

> Up the road vestiges of a long-abandoned oil well scar the wooded hill. . . .

Lexical metaphor often extended to pull together syntactic elements:

> . . . large portions of the linguistic puzzle, including those seemingly misrepresentative titles, have fallen together into their illogical places.

Students used metaphor structurally as well, as in the following excerpts from an essay which was organized around the link between rock music and the culinary:

> Just as surely as a wine connoisseur would refuse to drink muscatel, and as a gourmet chef would refuse to serve Spam, I refuse to listen to low-grade rock.
>
> The Motown recipe consisted of relatively simple lyrics and intense rhythm and blues backing music seasoned with slick pop craftsmanship. . . . Any comprehensive record collection should be well marbled with them.
>
> My album collection is peppered with choice cuts by these rock heros.
> My rock library is thick with psychedelic flavor.

It is customary to expect literature to be metaphoric, to be "aesthetic," and to praise the elegant and figurative language of canonical texts, and it is equally as common to consider composition as prosaic and déclassé. We have rarely assumed that student writing might be characterized by the

nature and use of metaphor. Yet, the prize-winning student writing examined in our sample was shot through with metaphoric uses of language at the above-mentioned textual levels.

Textbooks as proponents of traditional approaches to metaphor

Given the variety and extent of metaphor in the student essays we examined, we were also curious about how metaphor is represented to students in post-secondary composition classes. For one gauge of how composition teachers view metaphor, we surveyed the contents of the best-selling composition textbooks, assuming that these texts are the best measure of shared assumptions in the teaching community, and then supplemented the textbook analysis with written surveys and telephone interviews of authors and instructors. We found that the leading texts we analyzed resemble one another in startling ways in their treatment of metaphor, each implicitly endorsing a traditional, Aristotelian approach. That is, the typical textbook discussion viewed metaphor as (1) a deviation from ordinary language (2) in the form of an imaginative comparison (3) whose purpose is to make one's prose vivid or concrete. Metaphor was also commonly represented as something of a rhetorical gamble: it either wins or loses big, with the implication to the beginning writer to play it safe for a while. This traditional view of metaphor contrasts with more recent theories of the nature of language, which posit that, rather than being a deviation for special circumstances, metaphor permeates all language use. It is not only a matter of linguistic form but of thought and action on the most basic level.

In the textbooks we sampled, the traditional view of metaphor as simply stylistic ornament was often wedded to heavy-handed advice for student writers about how to incorporate (or not incorporate) metaphor in their essays. For example, one best-selling text cautioned students:

> You can go too far, of course. Your metaphors can be too thick and vivid, and the obvious pun brings a howl of protest. . . . I have myself sometimes advised scholars not to use them because they are so often overworked and so often tangled in physical impossibilities: "The violent population explosion has paved the way for the new intellectual growth" looks pretty good—until you realize that explosions do not pave, and that new vegetation does not grow up through solid pavement. "Cleared" instead of "paved" would have made the metaphor consistent. . . . [Metaphor] is dangerous. It should be quiet, almost unnoticed, with all details agreeing, and all absolutely consistent with the natural universe.

Textbook directives about metaphor, we found from our analyses, assume much the same tone as textbook directives about error, with their rules of use, consequences of failure, and negative examples. Given such imperatives—and the absolutes and the warnings—it is surprising that students use metaphor at all. Yet, our close readings of effective student expository essays suggests that these student writers use metaphor with far more complicated effects than has been anticipated by leading composition textbook writers.

IMPLICATIONS FOR PRACTICE

1. There is a need to acknowledge the richness of student writing and the resources that student writers bring to the activity of writing. Although students have much to learn about writing in the more stringent environment of the academy, they also possess important competencies, competencies which tend to be undercut by the elitist orientations often characteristic of composition textbooks. Composition specialists have become adept at characterizing misconceptions that students harbor about writing; we now need to identify the patterns of excellence—such as the use of metaphor—that characterize students' writing as well.

2. Authors and editors of college texts tend to "stay in the mainstream" of their disciplines in an attempt to appeal to the largest possible segment of the market. But successful textbooks also tend to be responsive rather than prescriptive and strive to address both the practical and theoretical concerns of their audience. Presently the authors and editors of college texts have a good opportunity to rethink the stances traditionally taken in college texts toward students and content. As stated above, students bring a diversity of resources to writing as well as gaps in knowledge; some possess a virtuosity with language that they—and perhaps their teachers and more certainly the authors of textbooks—do not always realize. Such resources, once they are identified, can be drawn upon in college textbooks as examples and points of departure for further instruction. Rather than focusing college textbooks on "basic" skills, and giving concepts like metaphor formulaic and brief treatment, authors and editors might encourage students to attend more productively to the literary elements of their own lives—both experientially and syntactically.

3. There is a need to continue to rethink the relationship between composition and literature. Most composition textbooks endorse, however inadvertently, what remains a widespread perception of the fundamental distinction between composition and literature. Student essays are aligned with what many textbook writers label as "practical prose." The unarticulated assumptions of many textbook writers—as well as of some theorists, researchers, and teachers of composition—is that there is an irrevocable distinction between composition and literature. Without stating it so specifically, many people identify "literature" with "talent" and "composition" with "skill." In this sense, "literature" stresses major texts and ways of reading intrinsically autonomous objects that demand sophisticated powers of analysis and synthesis. Many literature specialists consider the work of those in the composition corner of an English department to be impoverished in both its subject and in the intellectual powers upon which it draws its texts for analysis.

In respectful opposition to such positions, we want to argue for the importance of the essay as a literary genre. One of the most significant forms of non-violent individual empowerment in late 20th century America, the essay is the most democratic form of literature we have. Although the essay has been relegated to the status of a secondary source since the early decades of the 20th century, and has become the principal province of the academic writer, its fate is not sealed. We suggest that the time is right to reclaim the literary status of the essay and to restore its status as a primary form of literature. One way to do so is to acknowledge that the essays that students write have literary qualities—such as metaphor—recognizable both to the students who wrote them and to the peers and the instructor who will read and judge them.

PROJECT 10. UCB Project: *Identifying Priorities in the Study of the Writing of Hispanic Background Students*, a project to gather existing information on the writing of Hispanic background students. Project Director: Guadalupe Valdés.

PROJECT OVERVIEW

Project 10 was designed to assess the state of knowledge of the writing of Hispanic background students as it is reflected in the existing literature. This work had as its purpose providing a means by which both researchers and practitioners would be able to access available information on this general area easily. The final product of the work carried out was conceptualized as consisting of two parts: (1) a computerized data base of annotated materials which could be machine-searched as needed in order to identify particular areas of concern; and (2) a synthesis paper which would provide both an analysis and description of the materials studied as well as a discussion of priorities and directions for future research.

In order to create the data bank of materials, a total of four DIALOG system data bases were searched. These were: ERIC, MLA BIBLIOGRAPHY, LANGUAGE AND LANGUAGE BEHAVIOR ABSTRACTS, and DISSERTATION ABSTRACTS ONLINE. The searches identified a total number of 599 documents.

All documents identified by means of online and hand searches were reviewed for relevance. Those items which appeared from both title and abstract to be insufficiently related to the area of writing were eliminated at that time. Materials eliminated at this point included documents which focused on topics such as: literacy (reading only), language arts (general), teaching of the spoken language, ESL oral proficiency testing, language arts curriculum (general), teaching guides for ESL, and materials evaluating ethnic writing (belles lettres). Only items that appeared to focus closely on writing were retained for additional review.

Documents selected for further review in the step described above were generally of four different types: research reports, how-to articles/papers, evaluations of various types of language arts programs (bilingual and monolingual), and general discussions about writing. Of the original

599 documents identified, a total of 471 items were excluded after the review process was completed. All other materials identified (which were available to the compiling team at the UC Berkeley library or through inter-library loan) were read in their entirety, annotated, and manually entered as records in the SCI-MATE Manager program. Documents were excluded if they were not available on micro-fiche, in journals, or through inter-library loan services.

Since the records were entered manually, original abstracts were not copied from the printouts received from the DIALOG system. Instead, brief annotations were prepared for each document. Additionally, information was included about document focus, research methods used, writing behavior observed, problem addressed, and theoretical orientation.

Much attention was given to population characteristics. The ages, grades, and language background of the group(s) studied were entered as were geographical location, and exact Hispanic group studied. Each record also included information about the author(s)' attempt to determine the language proficiency of the group(s) studied.

The bibliographic data base on the writing of Hispanic background students contains a total of 130 records. A breakdown of the categories and types of documents included are presented in Table 1 below.

Table 1: General Focus of Documents

Document Focus	Number
Research Reports	83
How-to Articles	40
Reviews of the Literature	4
Teaching Materials	1
Other	2

KEY FINDINGS

1. *With some exceptions, both authors of research reports and how-to articles failed to measure the language competencies or proficiencies of the groups they studied.*

Research on the writing of Hispanic-background students has been considered important because this group includes both second language learners and speakers of non-prestige varieties of English. To date there is very little information about how existing theories about writing and the writing process apply to individuals who are composing in the weaker of their two languages. Little is known, for example, about the development of writing ability in groups of learners of varying proficiency, about the most effective ways of teaching writing to these learners, about the relationship between writing in a first language and writing in a second language, etc. What is clear, however, is that the language factor is a key variable which must be taken into account by researchers when they examine writing products and the writing process in this specific group of learners. The language factor is important because what can potentially make these learners different from mainstream English-speaking students is the very fact that their proficiency in English may not be equivalent to that of native speakers.

Given the importance of levels of language proficiency, one would expect, then, that in studying the writing of Hispanic-background students, researchers would make an effort to determine levels of language ability of their subject population and that they would describe this ability in some detail. This was, however, not the case for most of the documents included in this data base. With some exceptions, both authors of research reports and how-to articles failed to measure the language competencies or proficiencies of the groups they studied. Little or no information was included in most documents about procedures used for selection of subjects, informants, or student groups. Only 22 studies, for example, administered formal language measures. The majority of the authors were content to identify individuals focused on as: Spanish-surnamed, of Mexican background, from Spanish-speaking homes, etc. In most cases in which such broad terms were used, authors failed to define their terms or explain how they determined whether individual students were or were not Spanish-speaking.

The result of this is that it is difficult to determine exactly how language may have impacted on the writing behaviors described. It is also almost impossible to compare findings across different studies. Without information about language proficiency, one cannot conclude that the term Spanish-background or Spanish-speaking had the same meaning for different researchers. While one might expect, for example, that there would be differences between those persons who are English dominant, those who are limited English-speaking, and those who are incipient English speakers, these differences are blurred here because researchers/practitioners did not specify exactly which level was represented by the group they worked with.

Table 2 summarizes the information about the language proficiency which was reflected in the documents included in the data base. It should be noted that a number of documents provided no information about language whatsoever and, for this reason, are excluded from the counts presented below.

Table 2: Information Included in Documents about Language Proficiency

Studies	Number
No language description provided	68
Some language description provided	56
Description based on language measures	19
Description based on unknown criteria	37
Detailed language description provided	3
Description based on language measures	3

A total of 68 studies provided no language description of the subjects studied. A total of 56 studies did provide some information about language proficiency. Only 19 of these descriptions, however, were based on actual language measures. The remaining 37 studies provided

descriptions which were vague, which appeared to be based on the authors' impressions, and which included overlapping or imprecise terms. The terms used in these descriptions is included in Table 3 below. Only three studies actually provided detailed descriptions of the language proficiency of the subjects based on language measures administered and observational and self-report data.

Table 3: Descriptive Terms Used

Term	Number
Bilingual	25
Spanish-surnamed	1
ESL Students	15
Limited English Speaking	7
Spanish-speaking	24
Students in bilingual classes	10
Students from homes where Spanish is spoken	4
Spanish-first language	2
Spanish dominant	1

As was pointed out earlier, the terms used in describing the language proficiency in the majority of the studies are imprecise. It will be noted that the categories reflected by the terms used above are not mutually exclusive. Spanish-surnamed individuals, for example, may also be Spanish dominant, ESL students, limited English speaking, enrolled in bilingual classes, living in homes where Spanish is spoken, etc.

2. *As Table 4 illustrates, the 110 documents focusing on English language writing of Hispanic-background students covered the following principal areas:*

Table 4: The English Language Writing of Hispanic-Background Students

Principal Focus Areas
1. Bilingualism, Second Language Acquisition and Writing
2. Spanish Language Influence on English Language Writing
3. Product Focused Instruction
4. Writing Assessment
5. Attitudes toward Writing
6. The Development of Writing Abilities
7. The Interaction between Speech and Writing
8. Teaching Writers to Rewrite: Editing and Revising
9. Responses to Writing
10. The Interaction between Teaching and Writing
11. Other Areas Covered Briefly
Writing for Special Purposes
Basic Writing
Adult Writing
Computers and Writing
Creative Writing

3. *Research on the writing of Hispanic minorities has only begun to address areas that the research on the writing of mainstream students has already investigated at some depth.*

While the studies contained in the data base explore a number of different aspects of the writing of Hispanic-background students and view writing from a number of perspectives, in general, most researchers start out by assuming that Spanish-speaking or Spanish-surnamed students will experience problems when they write in English. Given American attitudes toward

bilingualism and towards the effects of bilingualism on academic achievement as well as the fact that Hispanic-background students have enjoyed little success in the school environment, this position is not unreasonable. However, it is definitely the case that, as opposed to recent research on writing among monolingual mainstream American students, research on the writing of Hispanic-background students tends to focus primarily on the analysis of written products (in order to describe key problems) and on product-focused instruction (which is expected to reduce these problems) and rarely on process. With very few exceptions, the attitude of the researchers included in the data base appears to be that there are no "expert" bilingual writers or even "successful" bilingual writers whose writing strategies are worth studying, and that there is nothing interesting to be learned by viewing the Hispanic-background writer as s/he develops proficiency in English language writing over time.

As a result, both the time and the attention of researchers has focused on what many would see today as relatively uninteresting in the light of current theories about writing in general. A very large number of researchers, for example, having decided that the problem resides in the fact that the Spanish language interferes or transfers negatively to English writing, are particularly concerned about describing errors found in student products and classifying those errors as to the kind of Spanish language influence they reflect. A much smaller group of researchers is concerned about areas such as writing assessment and the effect that number of errors, student ethnicity, and teacher ethnicity have on the evaluation of the writings of Hispanic background students. Still another group, aware of the importance of attitudes toward writing and of the effect teachers' assessments can have on these attitudes, have focused on the nature of these attitudes and the kinds of classroom activities that can bring about change.

SUMMARY AND IMPLICATIONS FOR FUTURE RESEARCH AGENDAS

Seen as a whole, the research on the English language writing of Hispanic-background students has only begun to address areas which the research on the writing of mainstream students has already investigated at some depth. Except for a few articles and recent dissertations,

individuals concerned about the writing of Hispanic students have not used the existing work on writing as a point of departure. They also have made few attempts to integrate their findings with what is already known about writers in general. Instead, much attention has been given to the examination of writing products, especially to the Spanish language influence reflected in these products; and much less attention has been given, for example, to the writing process in bilingual learners, to the development of writing abilities, to writing as a social activity, to task demands of assignments at school, or even to variation in individual writers.

The synthesis paper which was produced as the second part of this project takes the position that while research on writing on mainstream populations has increased greatly in the last several years, the same is not true about the research currently being carried out on the writing of minority populations. It further argues that when such research is carried out, it is often unrelated to current theories about writing and writing instruction. As the compilation of the data base made clear, most research on bilingual Hispanics has taken the view that negative transfer from Spanish to English is the cause of most writing problems for these students.

The point of view taken in this paper is that research on bilingual minority writers must begin at the beginning; that is to say, it must begin by asking how and whether such bilingual students actually experience problems in writing. By making no assumptions, this agenda hopes to suggest that, to some degree, the writing of minority bilinguals must be studied independently of the writing of mainstream individuals. While a number of areas require comparisons between mainstream and minority students, the research on mainstream writers cannot serve as a point of departure for most of the research carried out on bilingual writers. Rather, such research must stem from an understanding of the nature of bilingualism and of the nature of writing and from a desire to link the two areas together.

PROJECT 11. UCB Project: *Effects of Instruction on Performance—Transition to the Workplace*. Project Director: Jenny Cook-Gumperz. Consultants: John Gumperz and John Ogbu.

PROJECT OVERVIEW

Project 11 was designed to further our understanding of how writing functions in the transition to the workplace. The project focused both on young adults who left school and went directly into the labor force and on older adults returning to school, examining the *institutional career pathways* that such re-entry students must follow in order to move from the world of part-time, seasonal, and cyclical jobs and unemployment into the possibility of full-time career opportunities. The project sought to understand how instructional programs can most successfully provide such students with the writing and literacy skills they need to meet the challenges of a rapidly changing job market. The site chosen for study was a basic skills program at an urban community college that had received community-wide attention as a resource for helping local community members to re-enter the educational process.

SUMMARY OF FINDINGS

Conflicting expectations for re-entry programs

At the beginning of this project, we assumed that the needs of a literate workforce could be met by working within the usual educational pathways of adult education programs in community colleges and adult schools. The community college with open enrollment seemed to provide the largest range of educational possibilities for adults who want to improve their job chances and literacy skills. We expected that re-entry students, especially those with specific career goals in mind, would find the re-entry program to represent a reasonable first step toward reaching those goals.

Conclusions from this study question that assumption. Our expectations now appear to have been simplistic. The complexity of adult and vocational educational programs available to young and re-entry adults is bewildering to the students. Moreover, this complexity disguises a

lack of integration between the objectives of the training programs and the real literacy needs of the students. While the goal of community colleges and vocational programs is to provide training and support for re-entry students, the formal institutional linkages between courses and curricula require that students begin with a certifiable level of (what continues to be called) basic skills. The need for students to "catch up on the basics" presents a diversion of student energies and intentions which is usually detrimental to their follow-through or final success.

Tutors and staff in the general education (GED) courses and the remedial (development) courses sometimes act as an informal clearinghouse, providing students with information on further appropriate courses, or attempting to integrate the needs of further training programs with their own general basic skills courses. When such linkages are not provided in the context of the daily course activities, students often flounder in these remedial courses, never reaching the other areas of college training which could have motivated them to continue. Thus, the door of remedial programs is a revolving one, with students leaving and returning and leaving again as they search for solutions to what they see as their basic needs—employment and income. In this study, it seemed that only the recent immigrant bilingual students saw education as part of the solution.

The return to education, looked at from the perspective of the working adult, is rather different from that of someone who has recently left school. Not only is the view of learning different but also that of teaching. Students who have recently left school are likely to resist too much teacher authority, yet they are willing to accept course material as a necessary given. However, adult re-entry students interpret the tasks, activities, and material of courses against a background of personal experience; they expect this material to be related to and make sense to them in daily life. Their interaction with teachers and tutors in remedial programs is often far more demanding of support, yet critical of course materials and content. The degree of emotional commitment that is required in returning to education, when they were unsuccessful before, places adult students in a vulnerable and volatile situation—not one usually conducive to learning. The most effective tutors/ teachers understand this reality and organize both course content and student-teacher interaction to recognize these needs.

Primary among the teachers' concerns in remedial-development courses is the need to have a way of assessing the student's ability and position in relation to other courses and educational requirements. The remedial course is preparatory and is not intended to be a terminal contact with education for the students. Our ethnographic observations showed us that successful remedial teachers use reading tests as diagnostic rather than evaluative tools. A teacher's responsibility for assessing students is based on an acknowledged concern to provide an appropriate learning environment which is accepting without too much evaluation or inter-personal comparison. Yet pressure exists in the community college environment to relate student performance to the educational needs of other courses. For teachers to gauge a student's progress without basing their assessments and depending mainly on the evidence of psychometric techniques, such as reading tests, requires the exercise of expert judgement. Teachers of remedial courses relate test results to other aspects of student performance; some help students to use reading tests themselves as diagnostic tools to improve their own performance; and others provide students with feedback on ways of negotiating the academic study hurdles of test-taking.

From the students' point of view, with re-entry to education comes a reminder of past failures. As they enter remedial education, adult students voice their concerns over past problems at school, seeking to justify these while at same time expressing renewed hopes that this time education will bring about a change in their life chances. These two goals place them in a paradoxical situation which is sometimes difficult to resolve.

Researchers who work with re-entering adults are often aware of the tensions that underlie the students' position in what Mina Shaunessy has called the "remedial ante-room" of education. Many of the interactions between teachers/tutors and students involve ways of negotiating and formulating a "new beginning" in the educational process so that old mistakes do not affect the re-entry attempts.

Writing and the remedial teaching of basic skills

In looking at the teaching of writing, we used case studies of particular students. The focus was on both the range of methods used to teach writing to adult students and on the response of the students to these methods.

Findings from the case studies suggest that students' models of learning from text differ from the accepted ways of what has been called *de-contextualised* text learning. Not only do adults relate school learning to their own experience outside of the classroom, but they bring different culturally acquired practices into their activities. Students' own ideas about their learning practices reveal: (a) Students have different orders of priority in learning basic skills (they see writing as the more academic skill than reading and so accord it more importance). (b) Students have a different sense of the ownership of classroom-produced text, seeing it as a personal enterprise, not just a class assignment. (c) Students apply a different truth value to written texts, especially in reading assignments, asking first whether the writer of the text to be read is to be trusted. The attitude to reading is as if a particular voice of the author is to be released from the text by reading, and the student must first consider if this is a voice that needs hearing.

Discourse analysis of students' oral class presentations and written pieces reveals that adults who are returning to school, while less proficient in many of the conventional mechanics of writing, are very sensitive to genre differences in prose, suggesting that they already have developed a passive competency in literacy. Both the recognition of genre and the manipulation of different contextually-related genres are ways in which students can begin to gain greater competence in production of written prose. Analysis of written texts suggests that since narrative is part of the re-entry students' most usual compositional choice, to tell stories of past and present events working within the narrative mode is particularly promising for students growth; students can be helped to "objectify" their relationship to text through repeated telling and recasting of their own narratives. This move towards a perspectival shift within the narrative mode may better prepare students for the shift to expository prose than direct introduction of explanatory essays.

IMPLICATIONS FOR PRACTICE

1. A need exists to establish a clear *institutional pathway* from basic skills to certification programs, vocational education, or further academic work. While most colleges have such pathways in principle in the formal organization of the curricula, the students are often not aware in the early stages of re-entry of how to "make college work" and how to construct a study program. Even counselling, if not backed up within the daily activities of courses, does not provide the marginal student with a college identity.

2. The gap between basic skills and further learning is greater than would appear in course outlines and curricula. This gap is experienced as a difficult transition by many students. It needs to be a supported transition.

3. More attention must be given to how basic skills, vocational programs, and further academic work overlap. The institutional organization of most community colleges maintains these programs as separate, rather than creating more overlap and contact so that students can move in a simple trajectory and return if necessary. Teachers themselves make these bridges independently of the administrative organization of colleges through discussion and friendships.

4. For adult re-entry students, a "remedial" program for basic skills is a *last stop educational venue* and as such the usual relationship of teacher to student to program does not apply. For example, there is no point in making an overall pass/fail evaluation of students if there is nowhere else for students to go. Under these circumstances, the usual school assessment procedures need to become diagnostic, not evaluative, and involve the students in the judgment and decision process.

5. Specifics of school literacy as literacy for life need to be taught by methods that differ from the traditional *compositional* models which are based on the individual writer/reader. A change in methods would replace for adult learners the *individual* learning of reading and writing that is passive audience-oriented and text-focused by methods that involve a *group* learning process and are collaborative audience-oriented and activity-focused. Such methods would treat writing and reading as part of an action chain in which understanding and composing text becomes part of

a series of tasks within an activity. Knowledge should be not only group-supported but shared and pooled in order to complete any sequence of activities.

6. Basic skills of reading and writing are not just functional elements in school or college readiness but have a range of purposes for students' lives. The particular remedial program we worked with sees these aims as creating an educated citizenry both in the general political sense and in the sense of good "academic" citizens who know how to be students. The multiplicity of literate effects is both interpersonal and *intrapersonal* and needs to be seen in this way. Detailed work on discourse which is made possible in studying re-entry beginning and advanced beginning writers shows that gaining a greater range of literate skills implies a heightening of cognitive involvement in a range of activities.

7. A new model of learning is needed for adult re-entry students. Current educational theories of learning are based on too strict chronological principles tied to a stage theory of cognitive and intellectual development. Since adults are outside of this chronology, the view of adult literacy learners as "catching-up" on basic skills usually means that adults are simply seen as needing to go back to where they left off: that is, a person reading at the 5th grade level needs to rebuild skills from the 5th grade up. Such a view of adult learners neglects the complexity of their backgrounds and the wealth of practical, real-world experience they bring to the classroom. Unlike other students who rarely apply what they learn in school to outside life, adult students usually try to integrate or apply what they do in class to what they know or do outside the classroom. Therefore, a model of learning that makes a strict interpretation of test findings and grade level abilities will not serve the needs of adult re-entry students. Instead, adult students need a model of learning that recognizes that adults have an unpredictable range of needs and abilities connected to their life experiences.

B. IMPACT AND ACCOMPLISHMENTS

Although a new national research center, in its first five years the Center for the Study of Writing has had a significant impact on the teaching and learning of writing in the United States. The Center has sought not only to disseminate the results of its research but also to engage educators themselves in active observation and research—to create a community of reflective professionals. Besides forging links to practitioners, Center researchers have also interacted with key policy-makers whose decisions affect the conditions of schooling and with other researchers whose work is complementary to that of the Center.

Because of its close affiliation with the National Writing Project (NWP) network, widely recognized as the most powerful in-service teacher education model in the nation, the Center for the Study of Writing has had direct links to the approximately 733,000 practitioners who have participated in NWP's in-service workshops and institutes. Because these teachers remain in touch with NWP through a powerful network, with its administrative center at the University of California at Berkeley, the Center is able to take advantage of numerous opportunities for exercising national leadership and maintaining close ties with NWP sites. For example, each NWP site has a CSW liaison who serves as a contact for CSW dissemination activities and for response to CSW research activities. The liaisons receive complementary copies of all Center information and publications, and are responsible for distributing helpful materials to the teachers and teacher educators at their local sites. Also, Center researchers present workshops at NWP sites and at regional and national meetings. The Center also reaches a wide audience of Writing Project participants through its joint publication with NWP of *The Quarterly*, which is distributed to 2,500 subscribers each quarter. CSW is proud that one of its *Quarterly* articles received a first prize national award from the Education Writers of America.

At the policy level, Center representatives meet regularly with the NWP National Advisory Board to discuss the Center's research agenda and dissemination programs. NWP Advisory Board members come from all regions of the country. These personal contacts are important to

maintaining strong ties with the NWP network and the individual sites. NWP Director James Gray serves as a Co-Director for the Center and represents the Center on the agenda of the NWP site directors' two semi-annual meetings, which over 100 directors normally attend. At a large group session, Gray gives updates on Center activities and materials. He and other Center researchers also lead informal groups to discuss Center projects and gather feedback about dissemination. Ties with the NWP and the Center's ongoing and frequent interactions with practitioners are central to pushing forward the Center's twin goals of "research-sensitive practice" and "practice-sensitive research."

Both UCB and CMU Center staff have exercised a national leadership role in promoting, consulting on, and collaborating with various classroom inquiry efforts by teachers. We see these efforts leading to significant school-wide reforms. For example, at CMU the research into collaborative planning led to the "Making Thinking Visible" project, supported by the Howard Heinz Foundation. This project created a network of teachers from inner city and suburban high schools, community colleges, colleges, universities, and community centers in the Western Pennsylvania area. Beyond its local impact, the "Making Thinking Visible" project is also developing a distinctive model of classroom inquiry in which high school and college teachers, researchers, and community literacy leaders work in their own classes/community projects with a shared research agenda, adapted by each teacher to his or her special questions, but supported by the synergism of a collaborative effort. In addition, as a model of both how to teach pre-writing and planning, and of reflection and inquiry learning in the classroom, collaborative planning will play a significant role in the new series of 11th and 12th grade textbooks written by McDougal Littel and is being incorporated into the curriculum guides in the Pittsburgh schools.

Center research is also having an impact as it is disseminated through OERI Regional Laboratories. In particular, we consulted on several Laboratory-based programs in the area of writing and literacy; we helped initiate relationships between regional laboratories and sites of the National Writing Project network; and our research reports have been abstracted in Laboratory newsletters such as *R&D Preview*, published by the Council for Educational Development and

Research (CEDaR), and *SEDLetter*, published by the Southwest Educational Development Laboratory. CSW has formed especially close ties with the ERIC Clearinghouse on Reading and Communication Skills. ERIC archives and distributes all CSW publications.

During the past five years, the Center has collaborated extensively with a number of professional organizations. CSW and the National Council of Teachers of English (NCTE) planned a major conference on writing research for textbook publishers funded by the American Association of Publishers. Much of the Center's research was published through NCTE's journals, and NCTE published two books based on Center research (*Response to Student Writing* by Sarah Warshauer Freedman and *Collaboration Through Writing and Reading* edited by Anne Haas Dyson). Center researchers also served in NCTE leadership positions (e.g., Donald McQuade as incoming chair of the Conference on College Composition and Communication; Sandra R. Schecter as the TESOL [Teachers of English to Speakers of Other Languages] liaison to NCTE; Sarah Warshauer Freedman as a trustee of the Research Foundation and member of the Committee on Research; Anne Haas Dyson as a member of the Composition Commission and the Research Committee, as an editor of the research column for *Language Arts*, and as chair of the committee to choose the new editor for *Research in the Teaching of English*; Linda Flower as a member of the executive committee of the Conference on College Composition and Communication). Center work was recognized by NCTE with awards in the past two years to Linda Flower, James Gray, Mike Rose, and Sarah Warshauer Freedman. In addition, the Center reports research results regularly in *Council-Grams*, which goes to the NCTE membership, and advertises Center activities in the "white space" of NCTE publications.

The Center was active in similar ways in other professional organizations. The leadership of Freedman and Glynda Hull in chairing the Special Interest Group in Research and Writing of the American Educational Research Association (AERA) resulted in highly successful sessions and panel presentations. Dyson served as an officer of AERA's Special Interest Group in Language Development, and was invited, this past year, to deliver a special address to this group. The presentations of Center researchers in the area of written language development at AERA

conferences helped to establish key connections between writing and reading in the educational community. The Center also worked to forge important links between the communities of research and practice by working closely with AERA and the National Education Association (NEA) in the forthcoming publication of *Children of Promise*, about literacy education in the minority secondary school classroom, co-authored by researcher Shirley Brice Heath and teacher Leslie Mangiola. Finally, Center researchers presented their research for the National Association of Elementary School Principals.

Beside its impact on practitioners, the Center has made special efforts to include other members of the research community in its ongoing work. Researchers from around the nation and the world, including Australia, Canada, Chile, England, Germany, India, Israel, Norway, the Soviet Union, Sweden, Switzerland, and The Netherlands, have visited the Center for stays from a few days to a term or a full academic year.

The Center published 43 Technical Reports and 21 Occasional Papers which impact a wide audience and act as a starting point for dialogues with other researchers, practitioners, and policy-makers about the implications of Center research. During the past year, CSW distributed over 10,000 copies of these publications.

Center researchers published their work in many scholarly journals and books. During the past five years, Center researchers published over 60 articles in some 26 journals, reaching a wide and diverse audience of scholars, educators, and concerned readers of issues in education. In addition to works published in journals, Center researchers authored or edited 8 books and wrote chapters appearing in 33 other books.

The Center has published and distributed two brochures. A general brochure publicizing the Center has been distributed to 3,000 people. This past year, with funding from the Metropolitan Life Foundation, CSW published a second brochure on writing for diverse populations of students, especially those most at-risk of school failure; 4,200 copies have been distributed thus far. Brochures reach the general public—school administrators and teachers, parents, community leaders, and legislators.

Over the last five years, Center researchers gave over 475 presentations reaching some 25,000 people. Talks were given at 143 institutions (e.g., universities, professional organizations, corporations, state departments) in 34 states and 6 foreign countries.

With the help of the UCB and CMU publications offices, Center staff have generated press releases detailing Center activities and findings, which were sent to members of the media. In addition, the Center prepared copy for publication in journals and magazines with a focus on educational issues or research on writing and literacy. Articles discussing Center research findings have appeared in such publications as *The New York Times*, *The Chronicle of Higher Education*, *Reading Today*, *The Oakland Tribune*, and *The Educator*.

SECTION III. PUBLICATIONS BY INDIVIDUAL PROJECTS

A bibliography for each Center project follows. Refer to Appendix 1 for a complete list of Technical Reports and Occasional Papers published by the Center for the Study of Writing.

PUBLICATIONS RELATED TO PROJECT 1

Book

Dyson, A. H. (1989). *Multiple worlds of child writers: Friends learning to write.* New York: Teachers College Press.

Articles

Dyson, A. H. (1986). Transitions and tensions: Interrelationships between the drawing, talking, and dictating of young children. *Research in the Teaching of English, 20* (4), 379-146.

Dyson, A. H. (1988). Appreciating young children's drawing and dictating. *Young Children, 43* (3), 25-32.

Dyson, A. H. (1986). The imaginary worlds of childhood: A multimedia presentation. *Language Arts, 63* (5), 799-808.

Genishi, C., & Dyson, A. H. (1987). Research currents: On the issues that divide us. *Language Arts, 64* (6), 408-415.

Dyson, A. H. (1987). Individual differences in beginning composing. An orchestral vision of learning to write. *Written Communication, 4* (4), 396-420.

Dyson, A. H. (1987). Research currents: The emergence of children's written voices. *Language Arts, 64* (6), 648-658.

Dyson, A. H. (1987). The value of "time off task": Young children's spontaneous talk and deliberate text. *Harvard Educational Review, 57* (4), 396-420.

Dyson, A. H. (1988). Negotiation among multiple worlds: The space/time dimensions of young children's composing. *Research in the Teaching of English, 22* (4), 355-390.

Dyson, A. H. (1988). Re-embedding "disembedded" visions of young children's writing development. *The Quarterly, 10* (4), 1-3, 25-27.

Dyson, A. H., & Genishi, C. (1988). Research currents: The paradoxes of classroom research. *Language Arts, 65* (8), 788-798.

Dyson, A. H. (1989). Research currents: The space/time travels of story writers. *Language Arts, 66*, 330-340.

Dyson, A. H. (1989). "Once-upon-time" reconsidered: The developmental dialectic between function and form. *Written Communication, 6*, 436-462.

Dyson, A. H. (1990). Research currents: Diversity, social responsibility, and the story of literacy development. *Language Arts, 67*, 192-205.

Dyson, A. H. (1990). Symbol makers, symbol weavers: How children link play, pictures, and print. *Young Children, 45*, 50-69.

Dyson, A. H. (1990). The role of stories in the social imagination of childhood and beyond. *The New Advocate, 3*, 179-196.

Dyson, A. H. (in press). Weaving possibilities: Rethinking metaphors for early literacy development. *The Reading Teacher*.

Dyson, A. H. (in press). The word and the world: Reconceptualizing written language development, or, Do rainbows mean a lot to little girls? *Research in the Teaching of English*.

Dyson, A. H. (in press). Towards a reconceptualization of written language development (the illustrated version). *Linguistics in Education*.

Book Chapters

Dyson, A. H. (1989). Introduction: On collaboration. In A. H. Dyson (Ed.), *Collaboration through writing and reading: Exploring possibilities*. Urbana, IL: National Council of Teacher of English.

Dyson, A. H. (1990). The role of talk in learning to write. In D. Rubin & S. Hynds (Eds.), *Perspectives on talking and learning*. Urbana, IL: National Council of Teachers of English.

Dyson, A. H. (in press). Unintentional helping in the primary grades: Writing in the children's world. In B. Rafoth and D.R. Rubin (Eds.), *The social construction of written language*. Norwood, NJ: Ablex.

Dyson, A. H., and Freedman, S. W. (in press). Writing. In J. Flood, J. Jensen. D. Lapp, & J.R. Squire (Eds.), *Handbook of research on teaching the English Language Arts*. New York, Macmillan.

Dyson, A. H. (in press). Early writing development. In L.R. Williams & D.P. Fromberg (Eds.), *Encyclopedia of early childhood education*. NY: Garland Publishing.

Dyson, A. H. (in press). On friends and writers. In K. Goodman, Y. Goodman, & L.B. Bird (Eds.), *Whole language catalog*. NY: Macmillan-McGraw Hill.

Dyson, A. H. (in press). The roots of literacy development: Play, picture, and peers. In M. Almy, S. Ervin-Tripp, A. Nicolopoulou, & B. Scales (Eds.), *Play and the social context of development in early care and education*. NY: Teachers College Press.

PUBLICATIONS AND PRODUCTS RELATED TO PROJECT 2

Book

Flower, L., Stein, V., Ackerman, J., Kantz, M. J., McCormick, K., & Peck, W. C. (1990). *Reading-to-write: Exploring a cognitive and social process*. New York: Oxford University Press.

Articles and Chapters

Flower, L., Hayes, J. R., Carey, L., Schriver, K., & Stratman, J. (1986). Detection, diagnosis, and the strategies of revision. *College Composition and Communication, 37* (1), 16-55. (Recipient of 1987 Richard Braddock Award.)

Flower, L. (1987). Interpretive acts: Cognition and the construction of discourse. *Poetics, 16,* 109-130. (Special Issue:*The New Rhetoric and the New Literary Theory*)

Flower, L. (1988). The construction of purpose in writing and reading. *College English, 50,* 528-550.

Haas, C., & Flower, L. (1988). Rhetorical reading strategies and the construction of meaning. *College Composition and Communication, 39,* 167-183. (Recipient of 1989 Richard Braddock Award.)

Carey, L., & Flower, L. (1989). Foundations for creativity in the writing process: Rhetorical representations of ill-defined problems. In J. A. Glover, R. R. Ronning, & C. R. Reynolds (Eds.), *Handbook of creativity* (pp. 283-303). New York: Plenum Press.

Flower, L. (1989). Cognition, context, and theory building. *College Composition and Communication, 40* , 282-311.

Flower, L. (1989). What are these writers planning to do? *Planning to Write Newsletter, 1* (1), 1. Pittsburgh, PA: Carnegie Mellon University, Center for the Study of Writing.

Flower, L. (1989). Writers planning: Four snapshots from research. *Planning to Write Newsletter, 2* (1), 1. Pittsburgh, PA: Carnegie Mellon University, Center for the Study of Writing.

Flower, L., Spivey, N., Norris, L., Burnett, R., Hajduk, T., Peck, W., & Wallace, D. (1989). *The Making Thinking Visible project book: Year 1, 1989-90.* Pittsburgh, PA: Carnegie Mellon University, Center for the Study of Writing.

Rosebery, A. S., Flower, L., Warren, B., Bowen, B., Bruce, B., Kantz, M., & Penrose, A. M. (1989). The problem-solving processes of writers and readers. In A.H. Dyson (Ed.), *Collaboration through writing and reading* (pp. 136-163). Urbana, IL: National Council of Teachers of English.

Haas, C., & Flower, L. (1989). Counterstatement reply on rhetorical reading. *College Composition and Communication, 40* (Dec.), 482.

Flower, L. (1990). Introduction: Studying cognition in context. In L. Flower, et al., *Reading-to-write: Exploring a cognitive and social process* (pp. 1-32). New York: Oxford University Press.

Flower, L. (1990). The role of task representation in reading-to-write. In L. Flower, et al., *Reading-to-write: Exploring a cognitive and social process* (pp. 35-75). New York: Oxford University Press,.

Flower, L. (1990). Negotiating academic discourse. In L. Flower, et al., *Reading-to-write: Exploring a cognitive and social process* (pp. 221-252). New York: Oxford University Press.

Flower, L., Schriver, K. A., Carey, L., Haas, C., & Hayes, J. R. (in press). Planning in writing: The cognition of a constructive process. To appear in S. Witte, N. Nakadote, & R. Cherry (Eds.), *A rhetoric of doing*. Carbondale, IL: Southern Illinois University Press.

Huckin, T. N., & Flower, L. (forthcoming, 1991). Points and purposes in argumentative text. To appear in *Journal of Advanced Composition*.

Technical Reports and Occasional Papers

Flower, L. (1985). *Rhetorical problem solving: Cognition and professional writing* (Communications Design Center Technical Report No. 26). Pittsburgh, PA: Carnegie Mellon University.

Flower, L., Carey, L., & Hayes, J. R. (1986). *Diagnosis in revision: The expert's option* (Communications Design Center Technical Report No. 27). Pittsburgh, PA: Carnegie Mellon University.

Freedman, S. W., Dyson, A. H., Flower, L., & Chafe, W. (1987). *Research in writing: Past, present, and future* (Technical Report No. 1). Berkeley, CA: University of California, Center for the Study of Writing.

Flower, L. (1987). *The role of task representation in reading-to-write* (Technical Report No. 6). Berkeley, CA: University of California, Center for the Study of Writing. (Chapter 1: *Reading-To-Write: Exploring a Cognitive and Social Process*, 1990.)

Flower, L. (1987). *Interpretive acts: Cognition and the construction of discourse* (Occasional Paper No. 1). Berkeley, CA: University of California, Center for the Study of Writing.

Flower, L. (1988). *The construction of purpose in writing and reading* (Occasional Paper No. 4). Berkeley, CA: University of California, Center for the Study of Writing.

Rosebery, A. S., Flower, L., Warren, B., Bowen, B., Bruce, B., Kantz, M., & Penrose, A. M. (1989). *The problem-solving processes of writers and readers* (Occasional Paper No. 7). Berkeley, CA: University of California, Center for the Study of Writing.

Flower, L. (1989). *Cognition, context, and theory building* (Occasional Paper No. 11). Berkeley, CA: University of California, Center for the Study of Writing.

Flower, L. (1989). *Studying cognition in context: Introduction to the study* (Technical Report No. 21). Berkeley, CA: University of California, Center for the Study of Writing. (Introduction: *Reading-To-Write: Exploring a Cognitive and Social Process*, 1990.)

Flower, L. (1989). *Negotiating academic discourse* (Technical Report No. 29). Berkeley, CA: University of California, Center for the Study of Writing. (Chapter 9: *Reading-To-Write: Exploring a Cognitive and Social Process*, 1990.)

Carey, L. J., & Flower, L. (1989). *Foundations for creativity in the writing process: Rhetorical representations of ill-defined problems* (Technical Report No. 32). Berkeley, CA: University of California, Center for the Study of Writing.

Flower, L., Schriver, K. A., Carey, L., Haas, C., & Hayes, J. R. (1989). *Planning in writing: The cognition of a constructive process* (CSW/ONR Technical Report No. 34). Berkeley, CA: University of California, Center for the Study of Writing.

Carey, L., Flower, L., Hayes, J. R., Schriver, K. A., & Haas, C. (1989). *Differences in writers' initial task representations* (CSW/ONR Technical Report No. 35). Berkeley, CA: University of California, Center for the Study of Writing.

Huckin, T. N., & Flower, L. (in press). *Points and purposes in argumentative text* (Technical Report). Berkeley, CA: University of California, Center for the Study of Writing.

Televised Presentations and Videos

Reflections on collaborative planning. (1988). A 20-minute video introduces Blackboard Planner; includes excerpts of how CMU students plan a paper on time management. Executive Producers: L. Flower, J. Abi-Nader, M. Dancho. Produced by Instructional Media, Pittsburgh Public Schools and Center for the Study of Writing.

Collaborative planning: A video letter from Pittsburgh's High School for the Creative and Performing Arts. (1988). A 20-minute video with CAPA students. Executive Producers: L. Flower, R. Kuehner, D. Childers. Produced by CAPA.

Making thinking visible: Introducing and demonstrating collaborative planning. (1989). A 20-minute video answers six basic questions about what Collaborative Planning is and how it can be taught, with planning session examples from fifth-grade through college. Executive Producers: L. Norris, L. Flower, W. Peck. Produced by Carnegie Mellon University.

Technical Reports by Graduate Students also published as chapters in *Reading-to-Write: Exploring a Cognitive and Social Process* (New York: Oxford Press, 1990)

Ackerman, J. (1989). *Students' self-analyses and judges' perceptions: Where do they agree?* (Technical Report No. 22). Berkeley, CA: Center for the Study of Writing. (Chapter 3)

Ackerman, J. (1989). *Translating context into action* (Technical Report No. 27). Berkeley, CA: University of California, Center for the Study of Writing. (Chapter 7)

Kantz, M. (1989). *Promises of coherence, weak content, and strong organization: An analysis of the student texts* (Technical Report No. 22). Berkeley, CA: University of California, Center for the Study of Writing. (Chapter 2)

McCormick, K. (1989). *The cultural imperatives underlying cognitive acts* (Technical Report No. 28). Berkeley, CA: University of California, Center for the Study of Writing. (Chapter 8)

Peck, W. C. (1989). *The effects of prompts upon revision: A glimpse of the gap between planning and performance* (Technical Report No. 26). Berkeley, CA: University of California, Center for the Study of Writing. (Chapter 6)

Stein, V. (1989). *Exploring the cognition of reading-to-write* (Technical Report No. 24). Berkeley, CA: University of California, Center for the Study of Writing. (Chapter 4)

Stein, V. (1989). *Elaboration: Using what you know* (Technical Report No. 25). Berkeley, CA: University of California, Center for the Study of Writing. (Chapter 5)

Other Publications by Graduate Students

Ackerman, J. (1990). *Reading, writing, and knowing: The role of disciplinary knowledge in comprehension and composing*. (Technical Report No. 40). Berkeley, CA: University of California, Center for the Study of Writing.

Berkenkotter, C., Huckin, T., & Ackerman, J. (1989). *Social context and socially constructed texts: The initiation of a graduate student into a writing research community* (Technical Report No. 33). Berkeley, CA: University of California, Center for the Study of Writing.

Higgins, L., Flower, L., & Petraglia, J. (in press). *Planning text together: The role of critical reflection in student collaboration* (Technical Report). Berkeley, CA: University of California, Center for the Study of Writing.

Kantz, M. (1989). *Written rhetorical syntheses: Processes and products* (Technical Report No. 17). Berkeley, CA: University of California, Center for the Study of Writing.

Kantz, M. (1989). *Shirley and the battle of Agincourt: Why it is so hard for students to write persuasive researched analyses* (Occasional Paper No. 14). Berkeley, CA: University of California, Center for the Study of Writing.

Kantz, M. (1990). Helping students use textual sources persuasively. *College English, 52* (1), 74-91.

PUBLICATIONS RELATED TO PROJECT 3

Articles and Chapters

Hayes, J. R., & Flower, L. (1986). Writing research and the writer. *American Psychologist, 41* (10), 1106-1113.

Hayes, J. R., & Flower, L. (1987). On the structure of the writing process. *Topics in Language Disorders, 7* (4), 19-30.

Hayes, J. R., Flower, L., Schriver, K., Stratman, J., & Carey, L. (1987). Cognitive processes in revision. In S. Rosenberg (Ed.), *Advances in applied psycholinguistics, Vol II: Reading, writing and language processing* (pp. 176-240). Cambridge, England: Cambridge University Press.

Hayes, J. R. (1989). The analysis of a very complex task. In David Klahr and Kenneth Kotovsky (Eds.), *Complex Information Processing—The Impact of Herbert A. Simon* (pp. 209-234).

Schriver, K. A. (1989). Evaluating text quality: The continuum from text-focused to reader-focused methods. *IEEE Transactions on Professional Communication, 32* (4), 238-255.

Technical Reports and Occasional Papers

Hayes, J. R. (1990). *Cognitive processes in creativity* (Occasional Paper No. 18). Berkeley, CA: University of California, Center for the Study of Writing.

Hayes, J. R. (in press). *Peeking out from under the blinders: Some factors we shouldn't forget in studying writing* (Occasional Paper). Berkeley, CA: University of California, Center for the Study of Writing.

Schriver, K. A. (1990). *Theory building in rhetoric and composition: The role of empirical scholarship* (Technical Report No. 38). Berkeley, CA: University of California, Center for the Study of Writing.

Schriver, K. A. (1990). *Document design from 1980 to 1990: Challenges that remain* (Technical Report No. 39). Berkeley, CA: University of California, Center for the Study of Writing.

Schriver, K. A. (1990). *Evaluating text quality: The continuum from text-focused to reader-focused Methods* (Technical Report No. 41). Berkeley, CA: University of California, Center for the Study of Writing.

Schriver, K. A. (in press). *Plain language for expert or lay audiences: Designing text using protocol-aided revision* (Technical Report). Berkeley, CA: University of California, Center for the Study of Writing.

Publications by Graduate Students

Nelson, J., & Hayes, J. R. (1988). *How the writing context shapes college students' strategies for writing from sources* (Technical Report No. 16). Berkeley, CA: University of California, Center for the Study of Writing.

Wallace, D. L., & Hayes, J. R. (1988). *Redefining revision for freshmen.* (Occasional Paper No. 21). Berkeley, CA: University of California, Center for the Study of Writing.

PUBLICATIONS RELATED TO PROJECT 4

Articles and Chapters

Spivey, N. N. (1987). Construing constructivism: Reading research in the United States. *Poetics, 16*, 169-192.

Spivey, N. N. (1988). Composition instruction in the secondary school. In K. Reid (Ed.), *Teaching the learning disabled* (pp. 312-338). Boston: Allyn & Bacon.

Spivey, N. N., & King, J. R. (1989). Readers as writers composing from sources. *Reading Research Quarterly, 24*, 7-26.

Spivey, N. N. (1990). Transforming texts: Constructive processes in reading and writing. *Written Communication, 7*, 256-287.

Spivey, N. N. (1990). Reflecting upon our project. In J. Aston, L. Norris, & P. Turley (Eds.), *The making thinking visible casebook.* Pittsburgh, PA: The Center for the Study of Writing at Carnegie Mellon.

Spivey, N. N. (1990). Three dimensions of reflection. *Planning to Write Newsletter, 3*, 1-2.

Spivey, N. N. (in press). Discourse synthesis: Creating texts from texts. In J. R. Hayes et al (Eds.), *Empirical research in literacy: The emerging rhetorical tradition.* Hillsdale, NJ: Lawrence Erlbaum.

Spivey, N. N. (in press). Discourse synthesis: Questions and answers. *The Reading Teacher.*

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Technical Reports and Occasional Papers

Spivey, N. N. (1989, June). *Construing constructivism: Reading research in the United States* (Occasional Paper No. 12). Berkeley: Center for the Study of Writing at University of California, Berkeley, and Carnegie Mellon.

Spivey, N. N., & King, J. R. (1989, February). *Readers as writers composing from sources* (Technical Report No. 18). Berkeley: Center for the Study of Writing at University of California, Berkeley, and Carnegie Mellon.

Spivey, N. N. (in press). *Transforming texts: Constructive processes in reading and writing* (Technical Report). Berkeley: Center for the Study of Writing at University of California, Berkeley, and at Carnegie Mellon.

Spivey, N. N. (in press). *The shaping of meaning: Options in writing the comparison* (Technical Report). Berkeley: Center for the Study of Writing at University of California, Berkeley, and Carnegie Mellon.

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Greene, S. (1990, January). *Toward a dialectical theory of composing* (Occasional Paper No. 17). Berkeley: Center for the Study of Writing at University of California, Berkeley, and at Carnegie Mellon

Greene, S. (in press). Toward a dialectical theory of composing. *Rhetoric Review*.

Penrose, A. M. (1989). *Strategic differences in composing: Consequences of learning through writing*. Berkeley: Center for the Study of Writing at University of California, Berkeley, and at Carnegie Mellon.

PUBLICATIONS RELATED TO PROJECT 5

Book

Freedman, S., with Sperling, M., & Greenleaf, C. (1987). *Response to student writing* (Research Report 23). Urbana, IL: National Council of Teachers of English.

Articles and Book Chapters

Freedman, S. W., & Katz, A. (1987). Pedagogical interaction during the composing process: The writing conference. In A. Matsuhashi (Ed.), *Writing in real time: Modelling production processes* (pp. 58-80). Norwood, NJ: Ablex.

Sperling, M., & Freedman, S. W. (1987). A good girl writes like a good girl: Written response to student learning. *Written Communication, 4* (4), 343-369.

Freedman, S. W. (1987). Recent developments in writing: How teachers manage response. *English Journal, 76* (6), 35-40.

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Freedman, S. W. (1987). Pedagogical discourse in the writing conference. In G. Gagne (Ed.), *Selected papers on mother tongue education*. Dordrecht, The Netherlands/Cinnaminson, USA: FORIS.

DiPardo, A., & Freedman, S. W. (1988). Peer response groups in the writing classroom: Theoretic foundations and new directions. *Review of Educational Research, 58* (2), 119-149.

Freedman, S. W. (1989). Exchanging writing, exchanging cultures. *The Quarterly of the National Writing Project and the Center for the Study of Writing, 11* (3), 1-2.

Cone, J. (1989). Real voices for real audiences. *The Quarterly of the National Writing Project and the Center for the Study of Writing, 11* (3), 3-5.

Reed, S. (1989). London calling. *The Quarterly of the National Writing Project and the Center for the Study of Writing, 11* (3), 5-7.

Chapman, K. (1989). The response factor. *The Quarterly of the National Writing Project and the Center for the Study of Writing, 11* (3), 7-9.

Freedman, S. W. (1989). Beyond drills in basic skills: Exchanging writing with an audience in England. *The Educator, 3* (3), 12-14 (excerpted from *The Quarterly, 11* (3), 1-2, and from companion pieces).

Dyson, A. H., & Freedman, S. W. (in press). Writing. In J. Squire, J. Jensen, J. Flood, & D. Lapp (Eds.), *Handbook of research on teaching the English language arts*. New York: Macmillan.

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Freedman, S. W., Dyson, A. H., Flower, L., & Chafe, W. (1987). *Research in writing: Past, present and future* (Technical Report No. 1). Berkeley, CA: University of California, Center for the Study of Writing.

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DiPardo, A., & Freedman, S. W. (1987). *Historical overview: Groups in the writing classroom* (Technical Report No. 4). Berkeley, CA: University of California, Center for the Study of Writing.

Freedman, S. W. (1987). *Peer response groups in two ninth-grade classrooms* (Technical Report No. 12). Berkeley, CA: University of California, Center for the Study of Writing.

Freedman, S. W., & McLeod, A. (1988). *National surveys of successful teachers of writing and their students: The United States and the United Kingdom* (Technical Report No. 14). Berkeley, CA: University of California, Center for the Study of Writing.

Dyson, A. H., & Freedman, S. W. (1990). *On teaching writing: A review of the literature* (Occasional Paper No. 20). Berkeley, CA: University of California, Center for the Study of Writing.

Mackay, S., & Freedman, S. W. (in press). *Language minority education in Great Britain: A challenge to current U.S. policy* (Occasional Paper). Berkeley, CA: University of California, Center for the Study of Writing.

ERIC Resources in Education Publications

Freedman, S., & McLeod, A. (1988, May). National surveys of successful teachers of writing and their students: The United States and the United Kingdom. *Resources in Education*, ED 294 244.

PUBLICATIONS RELATED TO PROJECT 6

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Britton, J. (1987). *Writing and reading in the classroom* (Technical Report No. 8). Berkeley, CA: University of California, Center for the Study of Writing.

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McQuade, D. (1989). *Expectations of excellence* (Final Report for Project 9). Berkeley, CA: University of California, Center for the Study of Writing.

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Valdés, G. (1988). *Identifying priorities in the study of the writing of Hispanic background students* (Final Report for Project 10). Berkeley, CA: University of California, Center for the Study of Writing.

PUBLICATIONS RELATED TO PROJECT 11

Cook-Gumperz, J. (1989). *Literacy in the workplace* (Final Report for Project 11). Berkeley, CA: University of California, Center for the Study of Writing.

APPENDIX 1

TECHNICAL REPORTS AND OCCASIONAL PAPERS PUBLISHED BY THE CENTER FOR THE STUDY OF WRITING

PUBLICATIONS AVAILABLE FROM:

Center for the Study of Writing

University of California, Berkeley
Carnegie Mellon University

Technical Reports

1. Research in Writing: Past, Present and Future — $4.00
Sarah Warshauer Freedman, Anne Haas Dyson, Linda Flower, and Wallace Chafe — 61 pages

This paper discusses the past twenty years of writing research, reviewing relevant research in order to posit a social-cognitive theory of writing and the teaching and learning of writing. The authors provide a constructive rationale for the research mission of the Center for the Study of Writing. (Note: For an updated version of this literature review for a broader audience, see Occasional Paper No. 20.) August, 1987.

2. Unintentional Helping in the Primary Grades: Writing in the Children's World — $3.50
Anne Haas Dyson — 29 pages

Dyson explores children's classroom social lives, as revealed during journal time in a first/second grade class. Her analysis of peer social interactions shows such interactions to be key in contributing to and nurturing the skills and values associated with literacy. May, 1987.

3. A Good Girl Writes Like a Good Girl: Written Response and Clues to the Teaching/Learning Process — $3.00
Melanie Sperling and Sarah Warshauer Freedman — 18 pages

Sperling and Freedman present a case study of a high achieving student in a ninth-grade English class, exploring and analyzing sources of the student's misunderstanding of teacher-written response to her writing. They uncover a complexity of strategies that lie behind the misunderstanding, reflecting the information, skills, and values that teacher and student bring to the writing process. May, 1987.

4. Historical Overview: Groups in the Writing Classroom — $3.00
Anne DiPardo and Sarah Warshauer Freedman — 17 pages

In a review of research on the use of peer groups in the classroom—with a focus on peer response groups in the writing class—DiPardo and Freedman discuss the role of groups in the collaborative process of language learning. They suggest directions for future research on collaborative learning in general and on groups in writing classrooms in particular. September, 1987.

5. Properties of Spoken and Written Language — $3.50
Wallace Chafe and Jane Danielewicz — 27 pages

Chafe and Danielewicz discuss important linguistic features that characterize different types of spoken and written language, from dinner conversations to academic papers. Taking into account the cognitive and social demands made on speakers, listeners, writers and readers in their interactions with one another, they analyze the reasons for these language differences. May, 1987.

6. The Role of Task Representation in Reading-to-Write — $3.50
Linda Flower (Reading-to-Write Report 2) — 35 pages

In a study of college writers, Flower looks at the ways different writers interpret a "standard" writing task. In analyzing their reading and writing strategies, Flower demonstrates how students construct significantly different representations of a task, which leads to differences in their texts and their writing process. June, 1987.

7. A Sisyphean Task: Historical Perspectives on the Relationship Between Writing and Reading Instruction — $3.50, 47 pages
Geraldine Joncich Clifford (A joint report with the Center for the Study of Reading)

Using perspectives drawn from American educational and social history, Clifford identifies five historical forces and probes their interacting influence on English language education: the democratization of schooling, the professionalization of educators, technological change, the functionalist or pragmatic character of American culture, and liberationist ideologies. September, 1987.

8. Writing and Reading in the Classroom — $3.50, 25 pages
James Britton (A joint report with the Center for the Study of Reading)

Britton explores the classroom as an environment for literacy and literacy learning. He discusses ways in which teachers have developed strategies for encouraging children to learn to write-and-read—activities that have often been dissociated in classrooms but that together create a literacy learning environment. August, 1987.

9. Individual Differences in Beginning Composing: An Orchestral Vision of Learning to Write — $3.50, 28 pages
Anne Haas Dyson

Looking in depth at three first graders during classroom journal time, Dyson explores the interconnections of the children's speaking, writing, and drawing as indications of their developing acquisition of written language. Her analysis reveals the complexity of the writing acquisition process, as the three symbol systems interact in different ways for the different students. August, 1987.

10. Movement Into Word Reading and Spelling: How Spelling Contributes to Reading — $3.00, 15 pages
Linnea C. Ehri (A joint report with the Center for the Study of Reading)

Drawing on studies of the role of spelling in the reading process, Ehri discusses ways in which spelling contributes to the development of reading and, conversely, how reading contributes to spelling development. The role of writing in reading and spelling development is also discussed. September, 1987.

11. Punctuation and the Prosody of Written Language — $3.50, 32 pages
Wallace Chafe

Prosody—rises and falls in pitch, accents, pauses, rhythms, variations in voice quality—while a salient feature of spoken language, is not fully represented in written language. Reporting on a study of younger and older readers, Chafe explores the relationship between what he calls the covert prosody of writing and the principal device that writers use in order to make it at least partially overt, the devise of punctuation. October, 1987.

12. Peer Response Groups in Two Ninth-Grade Classrooms — $3.50, 29 pages
Sarah Warshauer Freedman

Freedman looks at peer response groups in two ninth-grade college preparatory classrooms. Her analysis of the students' face-to-face interactions reveals how students approach the substance and form of their writing, self- and other-evaluation, problem-solving, and audience awareness. October, 1987.

13. Writing and Reading: The Transactional Theory — $3.00, 20 pages
Louise M. Rosenblatt (A joint report with the Center for the Study of Reading)

This report focuses on some epistemologically-based concepts relevant to the comparison of the reading and writing process which Rosenblatt believes merit fuller study and application in teaching and research. January, 1988.

14. National Surveys of Successful Teachers of Writing and Their Students: The United Kingdom and the United States — $3.50, 49 pages
Sarah Warshauer Freedman and Alex McLeod

For this study, Freedman and McLeod collected self-report survey data from successful elementary and secondary teachers of writing and from a sample of secondary students in the U.K. to parallel Freedman's 1987 U.S. survey data. Based on these surveys, this report compares the teaching and learning of writing in the two countries, focusing on what occurs inside classrooms as writing gets taught and learned. May, 1988.

15. Negotiating Among Multiple Worlds: The Space/Time Dimensions of Young Children's Composing — $3.50, 36 pages
Anne Haas Dyson

In this examination of the drawing, talking, and writing of kindergartners, first-, and second-graders, Dyson focuses on children's growing awareness of text time and space as they develop as authors of fictional prose. This study questions the developmental appropriateness of traditional assumptions about "embedded" and "disembedded" language and about "narrative" and "expository" prose. May, 1988.

16. How the Writing Context Shapes College Students' Strategies for Writing from Sources — $3.50, 22 pages
Jennie Nelson and John R. Hayes

This study explores processes college students use to write assigned research papers. It examines the skills and assumptions that freshmen and more advanced college students bring to the tasks of selecting paper topics, finding and selecting sources of information, and developing an organizing structure and thesis for their papers. August, 1988.

17. Written Rhetorical Syntheses: Processes and Products — $3.50, 26 pages
Margaret Kantz

Addressing the ways in which college students synthesize source material when they write research papers, Kantz presents case study analyses of the composing processes and written products of three undergraduates, supplemented by quantitative analyses of a group of seventeen undergraduate research papers. From this analysis, she offers a tentative model of a synthesizing process. January, 1989.

18. Readers as Writers Composing from Sources — $3.50, 30 pages
Nancy Nelson Spivey and James R. King

Extending research on writing processes as well as reading processes, this study examines the report-writing of sixth, eighth, and tenth graders, as accomplished and less accomplished readers work with source texts and compose their own new texts. Analyses reveal composing patterns connected not only to grade level but to reading ability as well. February, 1989.

19. Rethinking Remediation: Toward a Social-Cognitive Understanding of Problematic Reading and Writing — $3.00, 16 pages
Glynda Hull and Mike Rose

This paper presents a case study of the writing produced by a community college student, considered "at risk" of not succeeding in school, for a basic reading and writing class. The authors reveal what writing strategies, habits, rules and assumptions characterize the writing skills of this underprepared student and suggest a pedagogy to move such students toward more conventional discourse. May, 1989.

20. Forms of Writing and Rereading From Writing: A Preliminary Report — $3.50
Elizabeth Sulzby, June Barnhart, and Joyce Hieshima — 34 pages
(A joint report with the Center for the Study of Reading)

The authors report on a study of young children's use of five emergent forms of writing—scribble, drawing, non-phonetic letter strings, phonetic or invented spelling, and conventional orthography. Describing developmental patterns of writing and rereading from writing found among kindergarten children, the authors discuss ways that children build a repertoire of useful linguistic tools using these five forms. July, 1989.

21. Studying Cognition in Context: Introduction to the Study — $3.50
Linda Flower (Reading-to-Write Report 1) — 42 pages

Reading-to-write is an act of critical literacy central to much of academic discourse. This project, divided into an Exploratory Study and a Teaching Study, examines the cognitive processes of reading-to-write as they are embedded in the social context of a college course. May, 1989.

22. Promises of Coherence, Weak Content, and Strong Organization: An Analysis of the Student Texts — $3.50
Margaret Kantz (Reading-to-Write Report 3) — 35 pages

Analysis of students' Organizing Plans (including free response, summary, review and comment, synthesis, and interpretation for a rhetorical purpose) also revealed a hybrid plan in which certain coherence conventions gave the promise of synthesis while the paper's substance reflected a simpler review and comment strategy. Both students and teachers, it appeared, may sometimes confuse coherence strategies (for text) with knowledge transformation strategies (for content). May, 1989.

23. Students' Self-Analyses and Judges' Perceptions: Where Do They Agree? — $3.50
John Ackerman (Reading-to-Write Report 4) — 29 pages

Any writing assignment is a negotiation between a teacher's expectations and a student's representation of the task. Students' Self-Analysis Checklists showed a strong shift in perception for students in the experimental training condition, but a tellingly low agreement with judges' perceptions of the texts. May, 1989.

24. Exploring the Cognition of Reading-to-Write — $3.50
Victoria Stein (Reading-to-Write Report 5) — 39 pages

A comparison of the protocols of 36 students showed differences in ways students monitored their comprehension, elaborated, structured the reading and planned their texts. A study of these patterns of cognition and case studies of selected students revealed both some successful and some problematic strategies students brought to this reading-to-write task. May, 1989.

25. Elaboration: Using What You Know — $3.50
Victoria Stein (Reading-to-Write Report 6) — 24 pages

The process of elaboration allowed students to use prior knowledge not only for comprehension and critical thinking, but also for structuring and planning their papers. However, much of this valuable thinking failed to be transferred into students' papers. May, 1989.

26. The Effects of Prompts Upon Revision: A Glimpse of the Gap Between Planning and Performance — $3.50
Wayne C. Peck (Reading-to-Write Report 7) — 26 pages

Students who were introduced to the options of task representation and prompted to attempt the difficult task of "interpreting for a purpose of one's own" on revision were far more likely to change their organizing plan than students prompted merely to revise to "make the text better." However, the protocols also revealed a significant group of students we called "Intenders" who, for various reasons, made plans they were unable to translate into text. May, 1989.

27. Translating Context into Action — $3.50
John Ackerman (Reading-to-Write Report 8) — 31 pages

One context for writing is the student's history of schooling including high school assignments and essays. Based on protocols, texts, and interviews, this report describes a set of "initial reading strategies" nearly every freshman used to begin the task—strategies that appear to reflect their training in summarization and recitation of information. From this limited and often unexamined starting point, students then had to construct a solution path which either clung to, modified, or rejected this a-rhetorical initial approach to reading and writing. May, 1989.

28. The Cultural Imperatives Underlying Cognitive Acts — $3.50
Kathleen McCormick (Reading-to-Write Report 9) — 37 pages

By setting reading-to-write in a broad cultural context we explore some of the cultural imperatives that might underlie particular cognitive acts. Protocols and interviews suggest that three culturally-based attitudes played a role in this task: the desire for closure, a belief in objectivity, and a refusal to write about perceived contradictions. May, 1989.

29. Negotiating Academic Discourse — $3.50
Linda Flower (Reading-to-Write Report 10) — 43 pages

Entering an academic discourse community is both a cognitive and social process guided by strategic knowledge, that is, by the goals writers set based on their reading of the context, by the strategies they invoke, and by their awareness of both these processes. As students move from a process based on comprehension and response to a more fully rhetorical, constructive process, they must embed old strategies within new goals, new readings of the rhetorical situation. However, for both social and cognitive reasons, this process of negotiation and change that academic discourse communities expect may not be apparent to many students for whom this becomes a confusing and tacit transition. May, 1989.

30. Expanding the Repertoire: An Anthology of Practical Approaches for the Teaching of Writing — $5.00
Kathleen McCormick, editor (Reading-to-Write Report 11) — 77 pages

One important implication of this entire study is that students themselves should come into the act of examining their own reading and writing processes and becoming more aware of cognitive and cultural implications of their choices. This set of classroom approaches, written by teachers collaborating on a Reading-to-Write course that grew out of this project, introduces students to ways of exploring their assumptions and alternative ways of representing aspects of the task. May, 1989.

31. Strategic Differences in Composing: Consequences for Learning Through Writing — $3.00
Ann M. Penrose — 18 pages

Exploring the assumption that writing is a way to learn, Penrose reports on a study of college freshman writers in which she identifies those features of the writing process that may influence learning. She discusses the relative effects of writing on different kinds of learning. May, 1989.

32. Foundations for Creativity in the Writing Process: Rhetorical Representations of Ill-defined Problems — $3.50
Linda J. Carey and Linda Flower — 30 pages

This paper examines the composing process of expert writers working in expository genres. Taking a problem-solving perspective, the authors address the concept of creativity in writing as it is embedded in ordinary cognitive processes. June, 1989.

33. Social Context and Socially Constructed Texts: The Initiation of a Graduate Student into a Writing Research Community — $3.50, 22 pages
Carol Berkenkotter, Thomas N. Huckin, and John Ackerman

The authors explore academic and professional writing as this kind of writing is shaped by social contexts. They examine a case-study doctoral student's writing development as, over time, he learns how to produce the type of academic prose valued by the professional community in which he is becoming a member. July, 1989.

34. Planning in Writing: The Cognition of a Constructive Process — $4.00, 55 pages
Linda Flower, Karen A. Schriver, Linda Carey, Christina Haas, and John R. Hayes
(A joint report with the Carnegie Mellon Planning Project)

This paper describes the process adult writers bring to ill-defined expository tasks, such as writing essays, articles, reports, and proposals. It presents a theory of constructive planning based on a detailed analysis of expert and novice writers and suggests goals for instruction and the support of planning. July, 1989.

35. Differences in Writers' Initial Task Representations — $3.50, 28 pages
Linda Carey, Linda Flower, John R. Hayes, Karen A. Schriver, and Christina Haas
(A joint report with the Carnegie Mellon Planning Project)

This exploratory study investigates how writers represent their task to themselves before beginning to write. Examining the writing plans of expert as well as student writers, it uncovers ways in which the type of planning writers do and the quality of their texts correlate. July, 1989.

36. "Once-upon-a-Time" Reconsidered: The Developmental Dialectic Between Function and Form — $3.50, 30 pages
Anne Haas Dyson

Based on a three-year study of writing development in an urban magnet school, this essay traces the evolution of "once-upon-a-time" in a case-study child's classroom story writing. Dyson demonstrates how the story forms young children learn from others are not the end products, but the catalysts, of development. July, 1989.

37. I Want to Talk to Each of You: Collaboration and the Teacher-Student Writing Conference — $4.00, 56 pages
Melanie Sperling

Following ethnographic procedures, Sperling examines teacher-student writing conferences in a ninth-grade English class for six case-study students. Through discourse analysis and descriptive narrative, Sperling shows how collaboration between teacher and student encourages students' learning as writers. October, 1989.

38. Theory Building in Rhetoric and Composition: The Role of Empirical Scholarship — $3.00, 15 pages
Karen A. Schriver

This paper discusses the assumptions underlying empirical approaches to scholarship in rhetoric and composition. Shriver reviews recent criticisms of empirical scholarship and advocates a pluralism that focuses on how well particular perspectives or methods are used, rather than using some perspectives or methods to argue against others. January, 1990.

39. Document Design from 1980 to 1990: Challenges that Remain — $3.50, 31 pages
Karen A. Schriver

"Document design" is the theory and practice of creating comprehensible, usable, and persuasive texts (oral or written, visual or verbal) for a particular audience in business, industry, government, or education. Schriver discusses the evolution of document design over the past decade, identifies challenges in integrating research with practice, and suggests a research agenda for document design in the 1990s. January, 1990.

40. Reading, Writing, and Knowing: The Role of Disciplinary Knowledge in Comprehension and Composing — $3.50, 42 pages
John M. Ackerman

To explore how experienced writers use both knowledge of a specific discipline and knowledge of general rhetorical skills, Ackerman analyses 40 synthesis essays written by graduate students in psychology and business. He finds that reading comprehension and composing processes are interrelated. March, 1990.

41. Evaluating Text Quality: The Continuum from Text-Focused to Reader-Focused Methods — $3.50, 36 pages
Karen A. Schriver

Noting that even experienced writers often need help in diagnosing text problems, Schriver discusses the strengths and limitations of three methods for evaluating text quality: (1) text-focused (including computer-based stylistic analysis programs), (2) expert-judgment-focused, and (3) reader-focused approaches. She concludes that reader-focused approaches offer the best opportunity for detecting problems in a text. March, 1990.

42. The Word and the World: Reconceptualizing Written Language Development, or, Do Rainbows Mean a Lot to Little Girls? — $3.50, 29 pages
Anne Haas Dyson

Arguing that current research has fragmented educators' vision of both written language and literacy development, Dyson offers a more integrated vision that preserves the integrity of written language as a symbol system, suggests five principles characterizing written language development that highlight the dialectical relationship between child construction and adult guidance, and discusses implications for early literacy instruction. April, 1990.

43. "This Was an Easy Assignment": Examining How Students Interpret Academic Writing Tasks — $3.50, 28 pages
Jennie Nelson

This study explores academic writing from the students' side of the desk, examining how thirteen college freshmen interpreted writing assignments in a variety of courses and how these interpretations differed from the intentions of the instructors making the assignments. October, 1990.

Occasional Papers

1. Interpretive Acts: Cognition and the Construction of Discourse — $3.00, 18 pages
Linda Flower

This paper discusses the cognitive processes which make reading and writing constructive (and intentional) acts. Flower elucidates a cognitive framework for understanding the acts of reading and writing, contrasting it with other familiar frameworks from other disciplines. September, 1987.

2. What Good is Punctuation? — $3.00, 6 pages
Wallace Chafe

Based on Chafe's study of punctuation and the prosody of written language, this paper discusses ways that punctuation reflects both a reader's and writer's "internal voice." The paper offers insights for teachers and learners about the assumptions that lie behind the use of punctuation in writing. November, 1987.

3. Drawing, Talking and Writing: Rethinking Writing Development — $3.50, 26 pages
Anne Haas Dyson

Based on Dyson's studies of primary grade children engaged in journal writing, this paper discusses how children move among and negotiate multiple worlds: the text world they create on paper; the social world that they share

with their peers; and the wider experienced world of people, places, events and things. Children's texts thus become increasingly embedded in their lives. February, 1988.

4. The Construction of Purpose in Writing and Reading — $3.50
Linda Flower — 21 pages

Based on a decade of studies of the cognitive processes student and expert writers reveal while composing text, this paper discusses two interrelated concerns: how writers come by/find/create their sense of purpose, and whether readers are aware of or are affected by writers' purposeful text construction. July, 1988.

5. Writing and Reading Working Together — $3.50
Robert J. Tierney, Rebekah Caplan, Linnea Ehri, Mary K. Healy, and Mary Hurdlow — 37 pages

Drawing on their teaching experience and research perspectives, the authors discuss specific classroom practices in which writing and reading work together. They focus on students' social and personal growth, growth in their learning, development of their critical reading, and improvements in their writing and reading skills as a result of these practices. August, 1988.

6. Narrative Knowers, Expository Knowledge: Discourse as Dialectic — $3.50
Anne DiPardo — 34 pages

DiPardo explores the schism between narrative and exposition and argues that instruction which fosters a "grand leap" away from narrative into the presumably more grown-up world of expository prose denies students the development of a complex way of knowing and seeing, robbing them of critical developmental experience with language. January, 1989.

7. The Problem-Solving Processes of Writers and Readers — $3.50
Ann S. Rosebery, Linda Flower, Beth Warren, Betsy Bowen, Bertram C. Bruce, Margaret Kantz, and Ann M. Penrose — 30 pages

The authors focus on writing and reading as forms of problem solving that are shaped by communicative purpose. They examine the kinds of problems that arise as writers and readers attempt to communicate with one another—as writers and readers try to write to a specific audience, for example, or as readers try to interpret an author's meaning—and the strategies they draw upon to resolve those problems. January, 1989.

8. Writing and Reading in the Community — $3.50
Robert Gundlach, Marcia Farr, and Jenny Cook-Gumperz — 41 pages

The authors review recent scholarship on writing and reading outside of school—that is, in the community, both at home and in the workplace. They explore writing and reading as social practices and consider the implications of this social view of literacy outside of school for writing and reading instruction in school. March, 1989.

9. Bridges: From Personal Writing to the Formal Essay — $3.00
James Moffett — 19 pages

Moffett discusses the transition from writing personal-experience themes to writing formal essays. As a framework for understanding this transition, he presents a schema that groups different writing types and shows their connections. As illustration, he includes examples of student writing from his anthology series *Active Voices*. March, 1989.

10. Contextual Complexities: Written Language Policies for Bilingual Programs — $3.00
Carole Edelsky and Sarah Hudelson — 16 pages

Because learning to write in school always happens in multiple and complex contexts, the authors argue for upper-level governmental policies for bilingual education that are broad and non-specific, linked to general goals, with local policies developed locally as the local situation dictates. June, 1989.

11. Cognition, Context, and Theory-Building — $3.50
Linda Flower — 27 pages

In this paper, Flower posits the need for a more integrated theoretical vision to explain the interaction of context and cognition. The paper discusses ways we might build such a vision. May, 1989.

12. Construing Constructivism: Reading Research in the United States — $3.50
Nancy Nelson Spivey — 24 pages

Constructivism portrays the reader as building a mental representation from textual cues by organizing, selecting, and connecting content. This paper reviews research on these aspects of reading and assesses the impact of constructivism on four reading-related issues in the United States: readability of texts, assessment of reading ability, instruction in reading, and conception of literacy. June, 1989.

13. Must Teachers Also Be Writers? — $3.00
Vivian Gussin Paley — 17 pages

In this paper, Paley provides examples of her classroom experiences with kindergartners, showing how keeping a daily journal helps her to understand her students, their learning, and her own teaching. Says Paley: "Only as we write down our thoughts and observations may we question and argue with ourselves about the things we do and say." September, 1989.

14. Shirley and the Battle of Agincourt: Why It Is So Hard for Students to Write Persuasive Researched Analyses — $3.50
Margaret Kantz — 25 pages

Using a fictional college sophomore called Shirley and her essay on the Battle of Agincourt, Kantz connects recent research on expository writing with a discussion of common student problems in writing a term paper. Kantz describes rhetorical strategies students can learn that will make their essays more interesting. November, 1989.

15. A Whole Language Approach to the Teaching of Bilingual Learners — $3.00
Alex Moore — 18 pages

This essay recounts the experiences of a London school teacher and a fifteen-year-old immigrant Bangladeshi student as they work together on drafts of the student's autobiography, illustrating how a sensitive teaching style can contribute to the development of writing skills in students whose first language is not English. January, 1990.

16. Using Student Writing to Assess and Promote Understandings in Science — $3.00
Paul Ammon and Mary Sue Ammon — 6 pages

Using examples of written work from elementary and high school students, this paper suggests that writing assignments can be a particularly rich source of information for science teachers who wish to take their students' present understandings into account as they plan and carry out instruction. January, 1990.

17. Toward a Dialectical Theory of Composing — $3.00
Stuart Greene — 19 pages

Greene reviews recent social theories of knowledge in composition studies and criticizes the neglect of individual cognition—of how individuals reflect, form judgments, make choices, and construct meaning. He calls for a dialectical cognitive-social epistemic that acknowledges both social and ideological forces as well as cognitive processes in explaining how students learn to write in their chosen disciplines. January, 1990.

18. Cognitive Processes in Creativity — $3.00
John R. Hayes — 15 pages

Hayes discusses characteristics of creative people and cognitive processes involved in creative acts. He argues that differences in people's ability to define problems or to recognize opportunities for creative solutions have their origin not in innate cognitive abilities but rather in the motivation and hard work of the creative person. January, 1990.

19. Weaving Possibilities: Rethinking Metaphors for Early Literacy Development — $3.00
Anne Haas Dyson — 19 pages

Dyson offers critical reflections on current ways of thinking about literacy teaching and learning, arguing that we must attend not only to the vertical "scaffolding" of young children's efforts but also to the horizontal "weaving" of their diverse intentions and resources. To clarify both the limits of scaffolding and the complementary possibilities of weaving, Dyson offers a closer look at the classroom experiences of two case-study kindergartners. July, 1990.

20. On Teaching Writing: A Review of the Literature — $3.50
Anne Haas Dyson and Sarah Warshauer Freedman — 44 pages

The teaching of writing is a complex act, both because of the complex nature of writing itself and because of the nature of classrooms as educational settings. In this paper, Dyson and Freedman review the kinds of interrelated research knowledge about writing that may help focus teacher observations, deepen insights, and inform the crucial decisions teachers make about how best to support their students' efforts. (Note: For a more complete and technical version of this literature review, see Technical Report No. 1.) July, 1990.

21. Redefining Revision for Freshmen — $3.00
David L. Wallace and John R. Hayes — 10 pages

This study investigates the impact of explicit instructions on the revising strategies of college freshmen. Wallace and Hayes find that students instructed to revise globally produce better revisions than students simply asked to revise. They were able to produce a significant increase in global revision and in revision quality with just eight minutes of instruction, which allowed students to access revision skills they already possessed. July, 1990.

Journal/Newsletter: *The Quarterly*

The Quarterly, a joint publication of the National Writing Project and the Center for the Study of Writing, is devoted to issues in research and in practice surrounding the teaching and learning of writing. *The Quarterly* is published four times per year (Winter, Spring, Summer, and Fall). A one-year domestic subscription (four issues) is $6.00.